

# **Recent Research on Tax Administration and Compliance**

*Selected Papers Given at the  
2008 IRS Research Conference*

**Georgetown University School of Law  
Washington, DC  
June 11-12, 2008**

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## **Foreword**

This edition of the IRS Research Bulletin (Publication 1500) features selected papers from the latest IRS Research Conference, held at the Georgetown University School of Law in Washington, DC, on June 11-12, 2008. Conference presenters and attendees included researchers from all areas of the IRS, officials from other Government agencies, and academic and private sector experts on tax policy, tax administration, and tax compliance.

The conference began with a keynote address by the new IRS Commissioner, Douglas Shulman. Commissioner Shulman emphasized the importance of undertaking a rigorous research program to help improve both enforcement of the tax laws and the effectiveness of taxpayer service activities—all with a view to improving taxpayer compliance and reducing the tax gap. He expressed his appreciation for the involvement of a wide range of researchers in that endeavor, as evidenced by the diverse makeup of the conference program and attendees.

Mark Mazur, Director, Research, Analysis, and Statistics, then led a panel discussion that highlighted and critiqued the Ready Return program that the State of California has begun implementing, which provides a small number of individual taxpayers the opportunity to file tax returns that have been prepared, or started, by the State. The panelists highlighted the potential benefits, hurdles, and risks if the IRS were to implement a similar program. The remainder of the conference included sessions on estimating individual income tax noncompliance, administering the corporation income tax in the 21st century, an historical overview of the IRS Statistics of Income program, innovative approaches to improving tax compliance, and harnessing technology to improve tax administration.

We hope that this volume will enable IRS executives, managers, employees, stakeholders, and tax administrators elsewhere to stay abreast of the latest trends and research findings affecting Federal tax administration. The research featured here is intended to provide a starting place from which to conduct further analysis.

## Acknowledgments

The IRS Research Conference was the result of substantial effort and preparation over a number of months by many people. The conference program was assembled by a committee representing research organizations throughout the IRS. Members of the program committee included Mark Mazur (Research, Analysis, and Statistics), Janice Hedemann (National Headquarters Office of Research), Melissa Kovalick (Research, Analysis, and Statistics), Alan Plumley, Ed Emblom, Ted Black, Sagit Leviner (National Headquarters Office of Research), Elizabeth Kruse (Office of Program Evaluation and Risk Analysis), Martha Gangi, Joe Koshansky (Statistics of Income), Julie Buckel, Louis Acevedo (Small Business and Self-Employed), Donald Evans (Tax Exempt and Government Entities), Javier Framinan (Wage and Investment), Tom Beers (Taxpayer Advocate), Patty Capozoli (Criminal Investigation), and David Stanley (Large and Mid-Size Business). Melissa Kovalick, Elizabeth Kruse, Martha Gangi, and Bobbie Vaira (Statistics of Income) oversaw numerous details to ensure that the conference ran smoothly.

This volume was prepared by Paul Bastuscheck, Heather Lilley, and Lisa Smith (layout and graphics) and James Dalton and Martha Eller Gangi (editors), all of the Statistics of Income Division. The authors of the papers are responsible for their content, and views expressed in these papers do not necessarily represent the views of the Department of the Treasury or the Internal Revenue Service.

I appreciate the contributions of everyone who helped make the IRS Research Conference a success.

Janice Hedemann  
Director, National Headquarters Office of Research  
Chair, 2008 IRS Research Conference

Note: The papers included in this volume may also be found on the IRS Web site at <http://www.irs.gov/taxstats/article/0,,id=187818,00.html>.

## 2008 IRS Research Conference

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**1**



**Estimating Individual Income Tax  
Noncompliance**

**Stamatiades ♦ Cook ♦ Larsen**





# **Abstract for Demographic and Noncompliance Study of the Advance Earned Income Tax Credit (AEITC)**

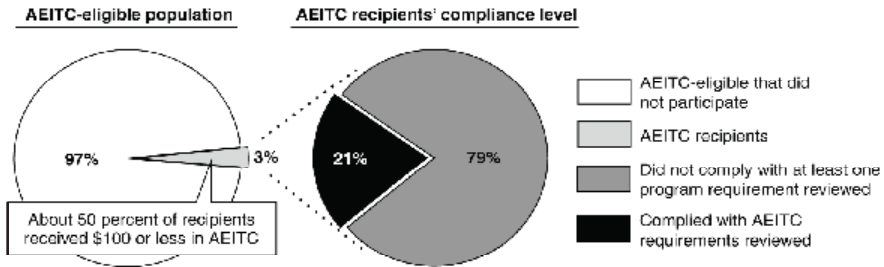
*Joanna Stamatiades and James Cook, U.S. Government Accountability  
Office, and Eric Larsen, Internal Revenue Service*

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**U**se of the AEITC was low—only about 3 percent of EITC recipients potentially eligible for the advance received it in Tax Years 2002 through 2004, or about 514,000 of the 17 million potentially eligible individuals each year. About half of all recipients received \$100 or less in AEITC, and 75 percent received \$500 or less for the year, with a total benefit paid of about \$146 million each year. Several efforts have been aimed at increasing use over the last approximately 15 years, such as sending notices to individuals informing them that they were potentially eligible for the AEITC and making changes to IRS forms. Despite these efforts, use did not substantially increase, and, for several reasons, it may be difficult to increase it in the future. For example, IRS officials, other experts, and prior GAO work suggests that individuals often do not elect the AEITC because they prefer receiving the entire EITC as a lump sum after filing their tax returns.

As many as 80 percent of AEITC recipients did not comply with at least one of the program requirements GAO reviewed, and some were non-compliant with more than one during the 3 years reviewed. In Tax Years 2002 through 2004, about 20 percent, or more than 100,000 AEITC recipients, may not have been eligible for the AEITC because they had an invalid Social Security number (SSN). These individuals received a total of \$37 million to \$39 million each year. Almost 40 percent (about 200,000 recipients) did not file the required tax return; these individuals received \$42 million to \$50 million each year. Of the nearly 60 percent (more than 300,000) AEITC recipients who did file a return, about two-thirds misreported the amount received.

## AEITC Use, Dollars, and Compliance in Tax Years 2002-2004



Source: GAO analysis of IRS data.

IRS's procedures have limited effectiveness in addressing AEITC non-compliance. For example, Automated Underreporter (AUR) staff worked on only a fraction of AEITC cases because of resource constraints and criteria limiting case selection. IRS could address AEITC noncompliance by sending "soft notices" to recipients, requiring employers to verify employee SSNs before providing the AEITC, or creating a Forms W-5, *EITC Advance Payment Certificate*, database. Each of these options has advantages; however, they also have potential disadvantages that could limit their effectiveness.

To view the full report from GAO, including the scope and methodology, see [www.gao.gov/cgi-bin/getrpt?GAO-07-1110](http://www.gao.gov/cgi-bin/getrpt?GAO-07-1110).

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**Administering the Corporation Income Tax  
in the 21st Century**

**Costa**

**Boynton ♦ Trautman ♦ Lisowsky**



# The One-Time Received Dividend Deduction

*Melissa Costa, Internal Revenue Service*

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Congress created the one-time dividend received deduction in the Homeland Investment Act, incorporated into the American Jobs Creation Act of 2004, to encourage U.S. corporations to repatriate their foreign earnings and place them in investments that would promote U.S. job growth. The newly added Internal Revenue Code section 965 outlines the provisions for this deduction, while Notice 2005-10, Notice-2005-35, and Notice 2005-64 provide additional guidelines. These provisions permit U.S. corporations a one-time deduction of 85 percent of the extraordinary dividends received from their controlled foreign corporations (CFCs), subject to certain limitations, from their U.S. taxable incomes, provided that the repatriated earnings are used to fund allowable domestic investments. A controlled foreign corporation is a corporation in which the U.S. shareholders own directly, indirectly, or constructively, more than 50 percent of either the total combined voting power or the total value of all stock on any day of the taxable year of the corporation. Generally, foreign earnings are not taxed until they are repatriated. Allowing the 85-percent deduction lowers the effective tax rate on qualifying dividends for corporations taxed at the highest rate from 35 percent to 5.25 percent [15 percent of taxable dividends X 35 percent]. The deduction could be claimed either in the last tax year that begins before October 22, 2004, or the last year that begins during the 1-year period beginning on October 22, 2004.

Cash dividends eligible for the deduction included section 302 and section 304 redemptions of stock, section 316 dividends, and cash from inbound liquidations considered a dividend by the provisions of section 367(b). Other amounts treated as dividends under section 367, as well as section 1248 dividends, subpart F income from the earnings and profits of CFCs, and previously taxed income (PTI), were not eligible. Earnings could be repatriated from lower-tier CFCs.

To qualify as extraordinary, the cash dividends received had to exceed the average dividend received from the corporation's CFCs over a base period defined as the 5 tax years ending prior to July 1, 2003. The base period dividends included distribution of PTI under subpart F, dividends of property, and section 956 distributions. To compute the average, the maximum and

minimum annual dividends were discarded, and the remaining 3 tax years were averaged.

Qualifying dividends were further limited to the greater of \$500 million or either the amount of earnings permanently reinvested outside the U.S. according to the corporation's balance sheet of its most recently audited financial statement as of June 30, 2003, or 35 percent of the specific tax liability attributable to earnings permanently reinvested outside the U.S. To meet the domestic reinvestment qualification, taxpayers had to file a domestic reinvestment plan (DRP) with their financial statements. The investment has to be in the form of cash, not stock, and has to be paid to unrelated persons, with the exception of pension payments. Permitted types of investments include hiring of new employees or training of existing staff, increase in the employees' salary or benefits, excluding executives, research and development, (if conducted within the United States) investments in infrastructure, intangible property and other capital investments, certain types of debt repayment, advertising or marketing, and acquisition of business entities, including foreign entities. Specifically not permitted investments include executive compensation, intercompany transactions, shareholder distributions, stock redemptions, portfolio investments, local, State or Federal tax payments and purchases of Treasury bills, and municipal or corporate bonds. However, as long as corporations meet their investment plans as outlined in their DRPs, they are free to spend an equivalent amount on something else.

Taxpayers were also required to reduce qualifying dividends by any increase in their CFC debt to related persons. This requirement prevented taxpayers from loaning funds to their CFCs and including the payments in their cash dividends. An exception existed for banks and securities dealers and for intercompany trade payables.

Finally, U.S. corporations were not permitted to use the dividend deduction to eliminate all of their taxable incomes. In cases where their net operating losses or other deductions were greater than the nondeductible portion of the qualifying dividends, corporations had to set taxable income equal to the nondeductible portion.

Taxpayers were permitted to specify which dividends qualified for the deduction. Ideally, corporations would specify dividends subject to low foreign taxes as qualifying and use the dividends received from countries with relatively high tax rates to satisfy the base period amount requirement. Such delineation was beneficial because withholding taxes could not be included in the dividend deduction and because foreign taxes paid on the deductible portion of the qualifying dividends were not eligible for the foreign tax credit, but foreign taxes paid on nonqualifying dividends could be credited.

## **Data Sources and Limitations**

Most of the statistics in this article are based on information reported on Form 8895 and related corporate returns selected for Statistics of Income's corporate sample for Tax Years 2004 through 2006. Industry codes and the country of incorporation of the controlled foreign corporations distributing the dividends were from SOI's 2004 Form 5471 study, where a CFC with a matching name on Form 8895, Part V existed. SOI also examined Form 1118, Schedule C to determine the country of incorporation in cases where a match with the Form 5471 could not be made due to a lack of adequate information provided by the taxpayer.

The returns in this study were selected after administrative processing but prior to any amendments or audit examination. The estimates are based on a stratified probability sample of 784 returns selected from a population of corporations reporting the dividend deduction on their corporate returns, and are thus subject to sampling error. The sampling error is considered to be very small, as most corporations in the study are relatively large, and large corporations are sampled at 100 percent. Each return in the sample was given a distinct weight, calculated by dividing the number of returns in a certain section of the study (industry, accounting period, etc.) by the number of sample returns for the same section. The purpose of these weights is to adjust for the various sampling rates used, relative to the population.

For the purposes of this article, weighted totals are used for all counts and numerical values. Data in this article, unless otherwise stated, refer just to those corporations claiming the dividend deduction.

## **The Results**

Some 843 corporations, a relatively small number of corporations given that roughly 9,700 corporations had CFCs in 2004, took advantage of the deduction. But these corporations repatriated almost \$362 billion. Of that, \$312 billion qualified for the deduction, creating a total deduction of \$265 billion. In comparison, \$804 billion of end-of-year, accumulated, nontaxable earnings and profits were reported for all controlled foreign corporations of all U.S. corporations for Tax Year 2004, the last tax year for which this statistic is available. Most corporations, 86 percent, reported the deduction for Tax Year 2005, while 7.7 percent reported it for Tax Year 2004, and the remaining 6.8 percent reported it for Tax Year 2006. Generally, corporations claiming the deduction were fairly large firms repatriating substantial amounts of their foreign earnings. The average total year-end assets were over

\$24 billion, while the average amount repatriated was roughly \$429 million, and the average qualifying dividend was \$370 million.

## Industry Composition

Figure A displays the number of returns, the cash dividends repatriated, the qualifying dividends, and the percentage of the total qualifying dividends, by selected major and minor industries. Manufacturing firms accounted for just over half the total returns, but 81 percent of the total qualifying dividends. Although corporations in the pharmaceutical and medicine manufacturing comprised a mere 3.4 percent of the filers reporting the deduction, they were responsible for 29 percent of the cash dividends repatriated and almost one-third of the qualifying dividends. This industry repatriated nearly \$106 billion dollars and was able to deduct almost \$84 billion. The computer and electronic equipment manufacturing industry also accounted for a substantial amount of the repatriation, with 19 percent of the total cash dividends.

**Figure A. Repatriated Dividends, Selected Items by Selected Major and Minor Industry of Parent Corporation, Tax Years 2004-2006**

[Money amounts are in billions of dollars]

Industry	Returns		Cash dividends		Qualifying dividends	
	Number	Percent of total	Amount	Percent of total	Amount	Percent of total
All industries, total	843	100	361.9	100	312.3	100
Manufacturing	465	55	289.4	80.0	252.2	80.8
Computer and electronic equipment	85	10	68.6	18.9	57.5	18.4
Pharmaceutical and medicine	29	3	105.5	29.2	98.8	31.6
Wholesale and retail trade	133	16	14.7	4.1	12.9	4.1
Information	49	6	14.6	4.0	13.2	4.2
Finance, insurance, real estate, and rental and leasing	49	6	13.3	3.7	11.9	3.8
All other industries	147	17	29.8	8.2	22.1	7.1

Figure B provides a look at the average end-of-year total assets, average cash and qualifying dividends, and the percentage of cash dividends that qualified for the deduction by the same industry groups. The finance, insurance, real estate, and rental and leasing industry group had the largest average end-of-year total assets, but brought back less, on average, than the \$429 million for all corporations. The manufacturing industry as a whole



reported smaller average total assets, but repatriated an average of \$622 million. Within manufacturing, the pharmaceutical and medicine manufacturing industry stands out, with an impressive average cash dividend of \$3.6 billion dollars and an average qualifying dividend of \$3.4 billion. The wholesale and retail trade industry group had the lowest average repatriation, with an average cash dividend of about \$111 million, of which about 97 million, on average, qualified.

**Figure B. Repatriated Dividends, Selected Averages, by Selected Major and Minor Industry of Parent Corporation, Tax Years 2004-2006**

[Money amounts are in millions of dollars]

Industry	Average total assets	Average cash dividends	Average qualifying dividends	Qualifying dividends as a percentage of cash dividends
All industries, total	24,003.8	429.3	370.5	86.3
Manufacturing	12,744.8	622.4	542.5	87.2
Computer and electronic equipment	4,950.9	806.7	676.3	83.8
Pharmaceutical and medicine	27,187.7	3,638.0	3,406.2	93.6
Wholesale and retail trade	2,320.4	110.5	96.7	87.5
Information	24,692.1	297.7	269.4	90.5
Finance, insurance, real estate, and rental and leasing	71,553.1	271.9	243.2	89.4
All other industries	63,158.3	202.9	150.3	74.1

Differences in the average dividend repatriated between industry groups may be due to differences in the amount of accumulated earnings and profits, the ability to extract those earnings from CFCs in cash within the allotted time frame, and the availability of foreign versus domestic investment opportunities.<sup>1,2</sup> The pharmaceutical industry tends to have more cash on hand than other industries, due to high profit margins and minimal capital spending. Furthermore, industry experts speculate that the pharmaceutical industry plans to use at least some of their repatriated earnings to acquire small biotech companies that already have new drugs in the works.<sup>3</sup>

<sup>1</sup> "Tax-Advantaged Repatriation of Foreign Cash Set To Expire at Year-End," *PriceWaterhouseCoopers Pharma Tax News*, Volume 4, Number 11.

<sup>2</sup> Blouin, Jennifer and Linda Krull, "Bringing It Home: A Study of Incentives Surrounding the Repatriation of Foreign Earnings under the American Jobs Creation Act of 2004," National Tax Association, August 2006.

<sup>3</sup> Brush, Michael, "A Corporate Tax Break That Could Benefit You," *MSN.Money*, February 9, 2005, <http://moneycentral.msn.com/content/P107022.asp>.

Overall, about 86 percent of cash dividends qualified for the deduction. The percentage for the pharmaceutical and medicine manufacturing industry was noticeably higher, at 94 percent.

The industrial makeup of the CFCs distributing the dividends differed somewhat than the makeup of the parent returns (Figure C). Although CFCs engaged in the manufacturing of pharmaceuticals and medicine were responsible for about 24 percent of the cash dividends and 27 percent of the qualifying dividends, CFCs that produce computer and electronic equipment accounted for only 7.8 percent of the cash dividends. Bank holding and other holding companies, not surprisingly, however, accounted for 27 percent of the cash dividends.

**Figure C. Repatriated Dividends, by Major and Selected Minor Industry of Distributing CFC, Tax Year 2004-2006**

[Money amounts are in billions of dollars]

Industry	CFCs		Cash dividends		Qualifying dividends	
	Number	Percentage of total	Amount	Percentage of total	Amount	Percentage of total
All industries, total	4,246	100.0	361.9	100	312.3	100.0
Manufacturing	1,361	32.1	168.8	46.6	156.5	50.1
Pharmaceutical and medicine	103	2.4	88.1	24.4	84.9	27.2
Wholesale and retail trade	739	17.4	23.1	6.4	16.6	5.3
Finance, insurance, real estate, and rental and leasing	386	9.1	20.8	5.7	16.6	5.3
Management of companies and enterprises	509	12.0	97.7	27.0	82.6	26.5
All other industries	1,251	29.4	51.5	14.2	40.0	12.8

## The Effect of the Limitations

Of all the various limitations that determine the amount of qualifying dividends, the requirement that qualifying dividends had to be extraordinary impacted the largest percentage of filers. Over half (56 percent), of the returns reported a base dividend. The total amount of base dividends was about \$34 billion, approximately 9 percent of the total cash dividends. Only 38 corporations, or about 5 percent, reported qualifying dividends equal to the cap of the greater of \$500 million or either their permanently invested foreign earnings or 35 percent of the tax liability attributable to earnings

permanently reinvested. Roughly one-fifth, however, planned to reinvest less than their extraordinary dividends. Overall, these firms lowered their otherwise qualifying dividends by \$14.6 billion, about 4 percent of total cash dividends for all firms claiming the deduction. Just 6 percent of corporations lowered their qualifying dividends by \$0.2 billion due to increased debt of their CFCs to related persons.

## Planned Completion Date

Most corporations planned to complete their domestic reinvestments in the near term. About one-third reported a planned completion date that fell within the taxable year in which the dividend deduction was claimed. Almost 70 percent of filers indicated their reinvestment would be completed by the end of 2007. Only 6 percent reported a completion date later than the end of 2009. See Figure D.

**Figure D. Planned Completion Dates for Reinvestment**

Planned date of completion	Number of returns	Percentage of total
By the end of:		
Total	843	100.0
2005	213	25.3
2006	206	24.4
2007	171	20.3
2008	75	8.9
2009	97	11.5
After 2009	51	6.0
Not specified	31	3.7

## Country Distribution of Repatriated Dividends

Figure E provides a regional distribution of the cash dividends by the country of incorporation of the distributing CFC. CFCs incorporated in Europe were responsible for 62 percent of the total repatriated cash dividends, while the Western Hemisphere, excluding Canada and Latin America, accounted for 11.4 percent. The latter figure is not surprising, since this country group includes many small Caribbean nations known to have favorable tax policies.

A closer look at the countries of incorporation with the largest percentage of cash dividends shows that the dominance of Europe is due to a large percentage of cash dividends from a handful of European nations. Figure F

Figure E. Cash Dividends from CFCs, by Country of Incorporation

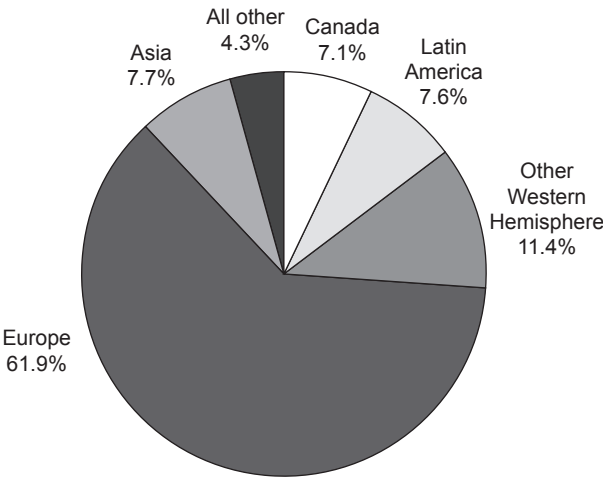
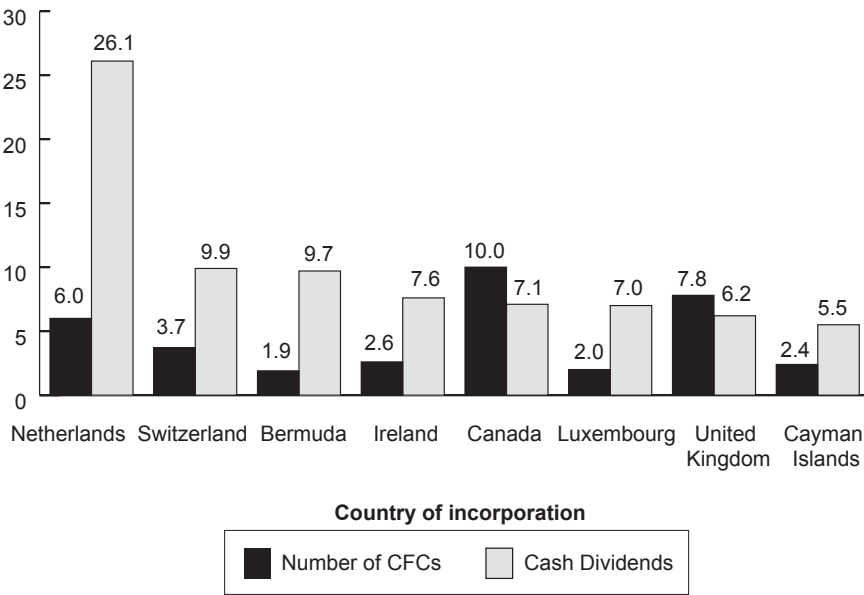


Figure F. Cash Dividends from CFCs, by Country of Incorporation



displays the percentage of CFCs and the percentage of cash dividends distributed, by the country of incorporation for the seven countries with the largest percentages of cash dividends. The Netherlands tops the list, with about 6 percent of the CFCs, but over 26 percent of the cash dividends. It is followed by Switzerland, Bermuda, Ireland, Canada, Luxembourg, the United Kingdom, and the Cayman Islands. Firms can be expected to park considerable shares of their earnings and profits in the Netherlands, Switzerland, Bermuda, Ireland, Luxembourg, and the Cayman Islands, as these countries are known for their favorable tax policies.

Canada and the United Kingdom, however, make the top seven list because a large number of CFCs exist in these two countries, as is evident in Figure G. This table lists the frequency of parent returns with CFCs incorporated in the seven countries previously mentioned, the average cash and qualifying dividend from each country, and the qualifying dividends as a percentage of the cash dividends. The countries are listed in descending order of largest average cash dividends. More corporations have CFCs incorporated in United Kingdom and Canada than in the other six selected countries, but the average cash and qualifying dividends are much lower than the average for all countries. In contrast, the number of returns with CFCs incorporated in Bermuda or Luxembourg is relatively low, just 5.6 percent and 4.7 percent respectively, but they have the highest average cash and qualifying dividends.

**Figure G. Number of Returns and Average Repatriated Dividends, by Selected Countries of Incorporation**

[Money amounts are in millions of dollars]

Country	Number of returns [1]	Average cash dividends	Average qualifying dividends	Qualifying dividends as a percentage of cash dividends
All countries, total	843	429,260	370,492	86.3
Bermuda	47	744,130	676,572	90.9
Luxembourg	40	635,969	586,673	92.2
Netherlands	149	633,657	603,438	95.2
Switzerland	78	458,761	415,662	90.6
Ireland	68	405,699	376,180	92.7
Cayman Islands	55	361,700	335,522	92.8
United Kingdom	206	114,176	81,662	71.5
Canada	244	104,674	87,851	83.9

[1] Sum of individual figures are greater than total because one company could have CFCs from multiple countries.

The dramatic differences in the percentage of cash dividends qualifying for the deduction between Canada and the United Kingdom on one hand, and the other countries in Figure G is most likely due to taxpayers maximizing their foreign tax credit by carefully designating their specifically qualifying dividends from each of their CFCs. A firm with dividends from the United Kingdom and Bermuda would most likely designate Bermuda dividends as qualifying first, before any dividends from the United Kingdom, as Bermuda has a zero tax rate, and use dividends from the United Kingdom, to the extent possible, to match its base dividend amount.

This “cherrypicking” of dividends is more obvious in Figure H, which lists the ten countries of incorporation with the highest percentage of cash dividends qualifying for the deduction and the ten lowest. A substantial difference exists in these percentages. While almost 98 percent of the cash dividends from CFCs incorporated in Singapore qualified for the deduction, less than 10 percent from those incorporated in Japan qualified.

**Figure H. Percentage of Cash Dividends Qualifying for the Deduction, by Country of Incorporation [1]**

Top Ten Countries		Lowest Ten Countries	
Singapore	97.9	Brazil	52.0
Malaysia	97.8	Philippines	50.8
Netherlands	95.2	Italy	43.1
Hong Kong	94.0	South Korea	42.1
Cayman Islands	92.8	Argentina	35.8
Ireland	92.7	South Africa	32.6
Luxembourg	92.2	Taiwan	28.2
Bermuda	90.9	Colombia	27.4
Switzerland	90.6	India	26.5
Sweden	90.3	Japan	9.9

[1] Excludes countries reported by less than 25 parent returns.

## Revised Foreign Tax Credit

Although taxpayers could not credit any foreign taxes paid on the deductible portion of their qualifying dividends, they were permitted to credit those paid on the nondeductible portion. However, they were required to adjust their foreign tax credit on Form 8895 by computing an additional limitation based on the nondeductible portion. To compute this limitation, taxpayers subtracted the amount of the nondeductible dividends from each applicable income category from the original numerator and denominator of the ratio

used to determine the original foreign tax credit limitation. Then, taxpayers multiplied the new ratio by U.S. income tax, less 35 percent (the highest U.S. corporate tax rate) of the nondeductible portion of the qualifying dividends. This new limitation was added to the foreign taxes attributed to the nondeductible qualifying dividends. Where the result was less than the original credit for the income category, it became the new credit.

Overall, taxpayers claiming the foreign tax credit attributed almost \$5 billion of foreign taxes to the nondeductible portion of their qualifying dividends. The ratio of these foreign taxes to the nondeductible portion of qualifying dividends for these returns is about 11.4 percent. Of the 582 taxpayers who reported a foreign tax credit, 168 or 28 percent reduced their foreign tax credit by a total of about \$3.2 billion. This reduction, however, comprised only 6.5 percent of the total foreign tax credit that otherwise would have been claimed for all corporations claiming the deduction. The manufacturing industry as a whole, as well as the wholesale and retail industry group, reported total revised foreign tax credits that were smaller than the sum of the foreign tax credits reported for those income categories with nondeductible dividends prior to the additional limitation computation. See Figure I.

**Figure I. Foreign Taxes and Tax Credit, by Selected Major and Minor Industry of Parent Corporation, Tax Years 2004-2006**

[Money amounts in billions of dollars]

Industry	Foreign taxes paid on nondeductible dividends	Foreign tax credit from income categories with nondeductible dividends, prior to reduction	Revised total foreign tax credit
All industries, total	5.0	47.5	45.8
Manufacturing	4.0	33.1	30.9
Computer and electronic equipment	0.8	5.8	4.8
Pharmaceutical and medicine	1.0	7.6	6.6
Wholesale and retail trade	0.2	1.5	1.4
Information	0.2	2.3	2.5
Finance, insurance, real estate, rental and leasing	0.1	1.3	1.6
Management of companies and enterprises	0.2	6.0	6.0
All other industries	0.2	3.4	3.4

## Conclusions

A small number of mostly large corporations repatriated nearly \$362 billion from their controlled foreign corporations and deducted about \$265 billion of these dividends from their taxable incomes. The pharmaceutical and medicine manufacturing industry brought home roughly 29 percent of the repatriated dividends. CFCs engaged in pharmaceutical and medicine manufacturing or defined as bank holding or other holding companies together accounted for over half of the dividends, while CFCs incorporated in the Netherlands distributed over a quarter of the repatriated earnings. The differences in the percentage of cash dividends qualifying for the deduction from different countries of incorporation of the distributing CFC reflect the ability of taxpayers to specifically designate their qualifying dividends. Finally, much of the qualifying dividends have already been invested or will be invested shortly.

### NOTE:

For additional data tables, visit SOI's Tax Stats Web site at <http://www.irs.gov/taxstats/bustaxstats/article/0,,id=180693,00.html>.



# E-File, Enterprise Structures, and Tax Compliance Risk Assessment<sup>1</sup>

*Charles Boynton and William B. Trautman, Internal Revenue Service,  
and Petro Lisowsky, University of Illinois at Urbana-Champaign*

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**T**he electronic filing of corporate and partnership tax returns in XML format makes it feasible to assess tax compliance risk in the context of an entire economic enterprise instead of just a tax return filing entity.<sup>2</sup> It is now possible to access all information on tax returns the moment the returns are electronically filed. It is also possible, using open-source XML and object-oriented programming technologies, to combine tax return information with financial statement information and information on related entities into an “enterprise data structure” which captures (and allows one to access programmatically) the organizational structure of the enterprise. These enterprise data structures not only have significant implications for tax shelter detection and book-tax analysis, but they also make it possible to consider simulation modeling as an alternative to statistical modeling in the assessment of tax compliance risk.

It had been possible in the past to create enterprise data structures, but it was not feasible because of the time-consuming and labor-intensive process of transcribing paper returns and manipulating the resulting data into a convenient format. Indeed, because data from paper returns trickled in over time, and because of the 3-year statute of limitations, the IRS’s Large and Mid-Size Business (LMSB) Division faced a real tradeoff between building more complete data structures for risk assessment and spending more time auditing returns.<sup>3</sup> In a paper return universe, as a result, the IRS was not able to create complete enterprise data structures for use in the tax compliance risk assessment process because of the need to deliver returns to the field in a timely manner. Electronic filing and open-source technologies now make it possible to create enterprise data structures in real time, giving examiners both more time to audit and better information with which to audit. Timely access to more information (and the structure of that information) makes it possible to develop more accurate compliance risk assessment models and should thereby allow the IRS and other State, local, and foreign tax adminis-

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<sup>1</sup> This paper was published by *Tax Notes* on September 15, 2008. It is reprinted with permission.

<sup>2</sup> XML is the eXtensible Markup Language.

<sup>3</sup> LMSB is responsible for taxpayers with assets of \$10 million or more.

trations to better target their audit resources on less compliant taxpayers and reduce the administrative burden on more compliant taxpayers.

This paper attempts to make the case for assessing tax compliance risk in the context of a broad economic enterprise instead of a tax return filing entity. It describes enterprise data structures and how to construct them in real time using open-source XML and object-oriented programming technologies, and it discusses the exciting opportunities these technologies make possible in the area of tax compliance risk assessment.<sup>4</sup> The remainder of the paper is organized as follows: First, it discusses the general objectives of the LMSB risk assessment and workload selection process. Second, it describes the XML and object-oriented technologies that make it possible to construct and manipulate enterprise data structures. This section includes discussion of an application the IRS currently employs based on a limited enterprise data structure for U.S. corporations and controlled foreign corporations. Third, the paper proposes how the IRS can integrate financial statement information and information on related entities into the enterprise data structure. It explains the evolution of the compliance risk assessment process and the opportunities that enterprise data structures make possible. Finally, the paper includes a discussion of the risk assessment process in the context of IRS workload selection and then presents our conclusion.

## Risk Assessment and Workload Selection

The objective of the Large and Mid-Size Business (LMSB) Division of the IRS is to allocate audit resources in a way that maximizes long-run voluntary compliance among the LMSB population. The first step in achieving this objective is to arrive at an assessment of compliance risk for a taxpayer, which can be thought of as the aggregation of the expected adjustments for all issues. The second step is to transform these disaggregate compliance risk estimates into a workload selection policy designed to achieve long-run voluntary compliance. The second step would consider, among other things, the indirect effects of the audit policy on voluntary compliance. The corollary from a data perspective is to collect and store all relevant

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<sup>4</sup> XML-based technologies are important not only for tax compliance purposes, as we will illustrate, but for financial reporting as well. Currently, the Securities and Exchange Commission (SEC) is examining the feasibility of an XML-based language called XBRL (eXtensible Business Reporting Language) to provide a more efficient and convenient way for investors, analysts, and researchers to systematically analyze corporate financial filings and disclosures. The SEC notes that countless hours are spent by investors to transcribe and manually convert financial and nonfinancial information into spreadsheets or other formats for analysis. However, using tagged data in the XML-based XBRL format decreases the cost of analyzing companies by eliminating the need to input existing information into predetermined formats. As such, XML-based reporting is becoming increasingly more important and relevant to a variety of interested parties, including the financial and tax authorities.

data, which may be multidimensional in nature, and whose structure may vary across the units of observation, and then transform the data into a vector of rankings representing the audit priorities of the IRS.

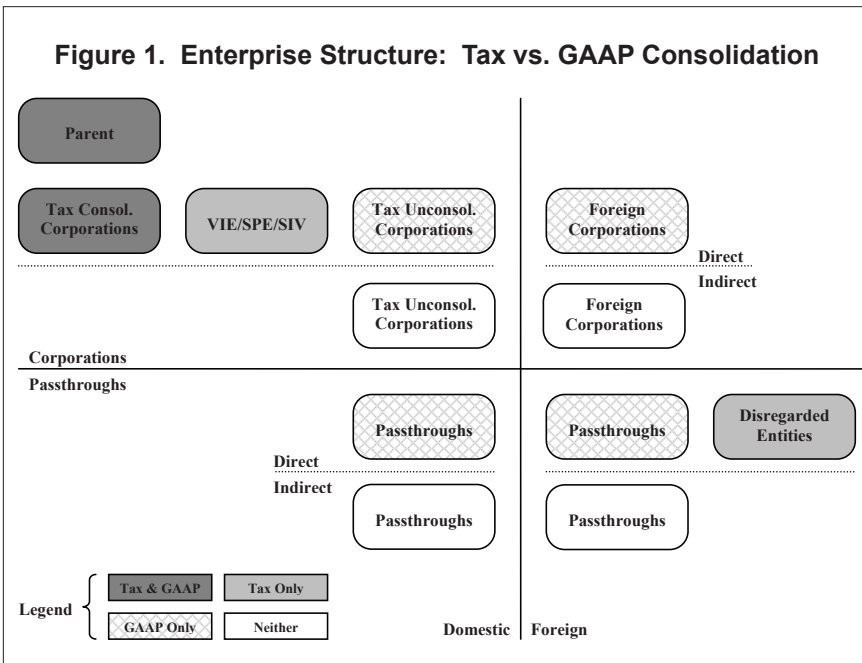
Because of the time-consuming and labor-intensive process of transcribing paper returns in the past, LMSB was unable to create complete data structures for the purpose of tax compliance risk assessment. The data structures were based on tax return filing entities and therefore did not include information from financial statements or information on related entities. Moreover, the information was essentially collapsed into a two-dimensional array so that all LMSB taxpayers could be represented in a rectangular dataset suitable for standard statistical analysis. Since business enterprises may be comprised of several legal entities, some of which join together to file a tax return and some of which file separate tax returns, the limitations of an incomplete and simplified data structure become apparent. Indeed, it is more difficult for the IRS to distinguish tax efficient from economically efficient behavior when it only has information on what may be a small piece of the entire business enterprise.

### **Complex Business Enterprises**

For our purposes, a business enterprise is any collection of related entities under sufficient effective common control to act collectively for the overall benefit of the effective owners of the enterprise. Tax law and financial accounting standards recognize that business transactions between related parties may not be at arm's length. For example, if A were an independent business enterprise, it would be expected to operate in a profit-maximizing manner. If A were part of a larger business enterprise comprised of A and B, however, A may not operate in a profit-maximizing manner with respect to its own activities, but it would be expected to operate in a profit-maximizing manner with respect to the broader group. If A exists in a high-tax-rate jurisdiction and B exists in a low-tax-rate jurisdiction, for example, the enterprise would have an incentive to shift revenue from A to B and costs from B to A to minimize its worldwide tax liability and increase the profits of the broader enterprise. The tax authority with jurisdiction over A, however, might seek to reduce the costs to a level consistent with the arm's length standard. The ability of the tax authority to identify such a transaction as aggressive would depend on its ability to see both sides of the transaction. LMSB therefore needs to evaluate the entire business enterprise for possible examination, rather than the separate returns of the legal

entities, since less than the entire business story may be told on any given legal entity separate return.

Unfortunately, neither consolidated tax returns nor consolidated financial statements following Generally Accepted Accounting Principles (GAAP) necessarily report the entire business story of a business enterprise. To illustrate this point in greater detail, consider the stylized array of 12 types of entities, arranged in four quadrants in Figure 1. The upper two quadrants contain corporations, and the lower two contain passthrough entities. The left two quadrants contain domestic U.S. entities, and the right two contain foreign entities. In each quadrant, a broken line separates entities directly controlled by the parent and/or tax-consolidated corporations (above the broken line) from entities indirectly controlled (below the line). In the upper-left-hand quadrant, three types of corporate entities, the parent, tax-consolidated corporations, and VIE/SPE/SIVs, join to file a U.S. tax return as a tax-consolidated group of U.S. corporations. In addition, foreign disregarded entities shown in the lower-right-hand quadrant also effectively join the consolidated tax return because the parent and/or tax-consolidated corporations are considered to own and be responsible for the tax reporting of all of the transactions of foreign disregarded entities.



This stylized business enterprise is comprised of all 12 pictured entities. Auditing the consolidated tax return filed by the parent will reveal the business activity of four of the 12 types of entities pictured. The return will include limited Form 5471 information on the directly controlled separate return foreign corporations meeting the controlled foreign corporation (CFC) test. The parent's tax-consolidated return will not include information on the U.S. separate return directly controlled tax-unconsolidated corporations or indirectly controlled tax-unconsolidated corporations. The parent's tax-consolidated return will also not include information on indirectly controlled foreign corporations, and will only contain limited information on directly controlled domestic U.S. passthroughs and foreign passthroughs. Many directly controlled U.S. passthroughs may, in fact, be limited liability companies (LLCs) wholly owned within the tax-consolidated group and used as substitutes for corporate subsidiaries. The use of the LLC as a substitute for corporate subsidiaries effectively transports part of the consolidated tax return onto the separate LLC tax return.

The parent's GAAP financial statements do not reveal the entire business enterprise either. GAAP financial statements will probably include the parent, tax-consolidated corporations, and directly controlled tax-unconsolidated corporations, directly controlled foreign corporations, directly controlled domestic U.S. passthroughs, and directly controlled foreign passthroughs. It is probable that VIE/SPE/SIVs will, in fact, escape inclusion in the GAAP financial statements if those entities are appropriately structured by the parent's advisors and bankers so as not to be recognized for GAAP (off-balance-sheet special purpose entities, variable interest entities, or structured investment vehicles (VIE/SPE/SIVs)).<sup>5</sup> Similarly, the parent's GAAP financial statements may fail to recognize foreign disregarded entities even though disregarded entities are included for tax accounting in the parent's consolidated tax return. The indirectly controlled tax-unconsolidated corporations, indirectly controlled foreign corporations, indirectly controlled domestic U.S. passthroughs, and indirectly controlled foreign passthroughs will most probably not be included in the parent's GAAP financial statements.

To properly interpret the parent's tax compliance risk, LMSB must understand the business transactions occurring within this stylized 12-entity related-party enterprise. LMSB must evaluate the tax compliance of all 12 entities comprising the enterprise at the same time and not as separate returns. The related party problem for LMSB is twofold: 1) how to identify critical relationship structures, and 2) how to use the identified relationship

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<sup>5</sup> See Appendix for tax and financial consolidation rules.

structures to interpret or reinterpret the reported transactions. The first aspect requires information linkages and search rules, as well as the data storage capacity to store these two key items. The second aspect requires the capacity to manipulate the linking information under the search rules to create the critical relationship structures and then to manipulate the reported transactions within the relationship structure for appropriate interpretation. It is this understanding of relationships and structures that will ultimately improve the compliance risk assessment abilities of LMSB. The next section discusses from a technological standpoint how these relationships and structures can be captured, developed, and analyzed.

## Technologies

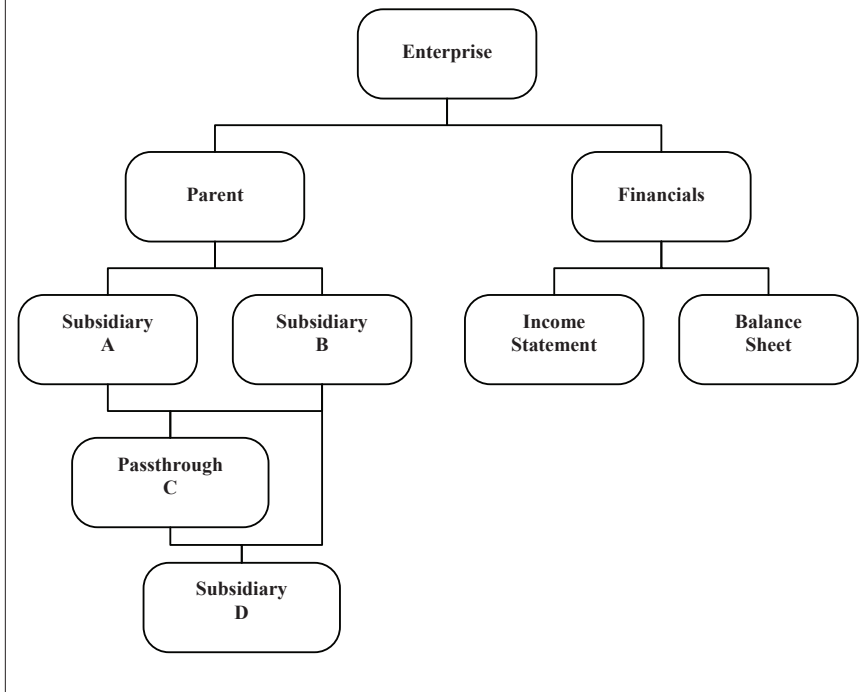
As of tax years ending on or after December 31, 2006, all LMSB corporations with assets of \$10 million or more that file at least 250 returns (including, e.g., W-2s and 1099s) annually are required to file their Forms 1120 and 1120S electronically. This requirement is known as mandatory electronic filing. The returns are filed in XML format, which is character-based and hierarchically structured. The hierarchical or treelike structure of XML means that, in addition to all of the data elements associated with tax returns, XML captures the structural relationships among the data elements. Figure 2 includes a stylized representation of a business enterprise in a complex tiered structure, which includes a parent with tax consolidated subsidiaries A and B, a tax-unconsolidated passthrough entity C, and a tax-unconsolidated subsidiary D (assuming C owns more than 20 percent of D). Figure 3 renders the information in XML format. Notice that the Subsidiary and Passthrough tags contain ID child elements and that the hierarchy of the data is captured using nested tags. Notice also that there are multiple references to Passthrough C and Subsidiary D, which are necessary to capture the complex ownership structure.

It is relatively straightforward to create and manipulate XML documents using custom-written programs or such software as XSLT and output the transformed document in a wide variety of formats, including XML, XHTML, text, and PDF.<sup>6</sup> In particular, one could easily convert financial statement data (e.g., income and balance sheet information) in any format into an XML document.<sup>7</sup> One could also merge XML financial statement, related entity, and tax return documents together, reorganize the nodes in a

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<sup>6</sup> XSLT is the Extensible Stylesheet Language for Transformations and is XML-compatible.

<sup>7</sup> The availability of XBRL will eliminate any need to preprocess the financial statement data into an XML-compatible format.

**Figure 2. Stylized Enterprise Structure**

way that reflects the organizational structure of the enterprise, and extract the relevant nodes into a single XML enterprise document (e.g., see Figure 3). The ability to create these XML enterprise documents requires unique keys to link the component elements, and it requires a recursive process to incorporate chains of related entities.<sup>8</sup> It is necessary to establish ownership parameters (i.e., direct or indirect ownership or control thresholds) and stopping rules to establish the end points of chains of related entities. It is also necessary to develop an algorithm to handle single entities which appear at multiple locations within the ownership chain (i.e., complex ownership structures).

<sup>8</sup> The unique keys are likely to be EIN and accounting period. With respect to the related entity information, the unique keys would be available from Form 851 and Schedules K-1. For tax years ending on or after December 31, 2008, corporations and partnerships will be required to provide detailed information (including taxpayer identification number) on their owners and those they own. See Financial Information and Related Entities section for further discussion of the linkage issue.

**Figure 3. Stylized Enterprise in XML**

```

<Enterprise>
  <Parent>
    <Subsidiary>
      <ID>A</ID>
      <Passthrough>
        <ID>C</ID>
        <Subsidiary>
          <ID>D</ID>
        </Subsidiary>
      </Passthrough>
    </Subsidiary>
    <Subsidiary>
      <ID>B</ID>
      <Passthrough>
        <ID>C</ID>
        <Subsidiary>
          <ID>D</ID>
        </Subsidiary>
      </Passthrough>
      <Subsidiary>
        <ID>D</ID>
      </Subsidiary>
    </Subsidiary>
  </Parent>
  <Financials>
    <IncomeStatement>
      <Income>1000</Income>
    </IncomeStatement>
    <BalanceSheet>
      <Assets>1000000</Assets>
      <Liabilities>750000</Liabilities>
      <Equity>250000</Equity>
    </BalanceSheet>
  </Financials>
</Enterprise>

```

## Object-Oriented Programming

An appropriately restructured XML enterprise document would contain all of the information available for assessing the tax compliance risk of a business enterprise, but it would be in character format and not readily handled by analytic software. One might consider extracting the XML enterprise document into one or more linked relational database tables which specify data types and are therefore a more efficient foundation for analysis. Since



LMSB taxpayers vary significantly in terms of their organizational complexity, capturing the detail and complex ownership structures across multiple business enterprises would require a highly complex relational database model. In practice, one would probably end up abstracting away from the detail and complexity in order to create less complex sets of database tables. This would obviously involve information loss and the possible costly need to redesign the relational database model for future analyses that required more detailed information.

A preferable alternative to the relational database approach is to create an enterprise object model using object-oriented programming (OOP) techniques. This approach effectively eliminates the time-consuming process of creating intermediate relational database tables. It imports the XML data and creates an enterprise object model that captures both the detail of the data as well as the organizational structure of the enterprise. It does so by creating computer objects for each of the structural components of the enterprise and building the enterprise model as it parses the XML document. The components may include objects for parents, financial statements, domestic and foreign subsidiaries, related partnerships and trusts. Each object would include data specific to the type of entity and containers with references to lower-tier entity objects.<sup>9</sup> These references may, in fact, be objects containing ownership and control information in addition to references to the lower-tier entity objects.

With respect to the stylized enterprise structure in Figure 2, for example, one would create an Enterprise object which would contain a Parent object and a Financials object. The Parent object would contain an array with two Ownership objects, one with ownership and control information and a reference to tax-consolidated Subsidiary A and the other with similar information but a reference to tax-consolidated Subsidiary B. The Subsidiary A object would contain an array with one ownership object referencing the tax-unconsolidated Passthrough C object. The Passthrough C object would, in turn, contain an array with one ownership object referencing the tax-unconsolidated Subsidiary D object. The Subsidiary B object would contain an array with two ownership objects, one referencing Passthrough C and one referencing Subsidiary D. There would be a single object for Passthrough C and a single object for Subsidiary D, in contrast to the multiple references for each in the XML enterprise document in Figure 3. These multiple references have been replaced with ownership objects in the process of creating the enterprise object.

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<sup>9</sup> The objects also include methods for retrieving the data stored in the objects.

## A Current Application

One of the authors has developed an application which will import an electronically filed tax return document in XML format and create a limited enterprise data object in real time. The enterprise object contains arrays with references to Form 926, 1118, 1120, 5471, 5472, 8858, and 8865 objects, as well as a Schedule M-3 object.<sup>10</sup> Although the software does not yet incorporate current financial statement information or current information on related entities, it has demonstrated that it is possible to incorporate such information from separate stylized XML financial statement and related entity documents. In addition, the application includes objects for each form which contain algorithms for computing issue-specific measures of risk at the aggregate and disaggregate (e.g., CFC) levels.<sup>11</sup> This output is then transformed into a PDF-formatted report which is available to examiners for audit-planning purposes. The entire process from tax return filing to PDF report takes place in real time.<sup>12</sup> A screenshot of the user interface is included in Figure 4.

## Current Issues and Caveats

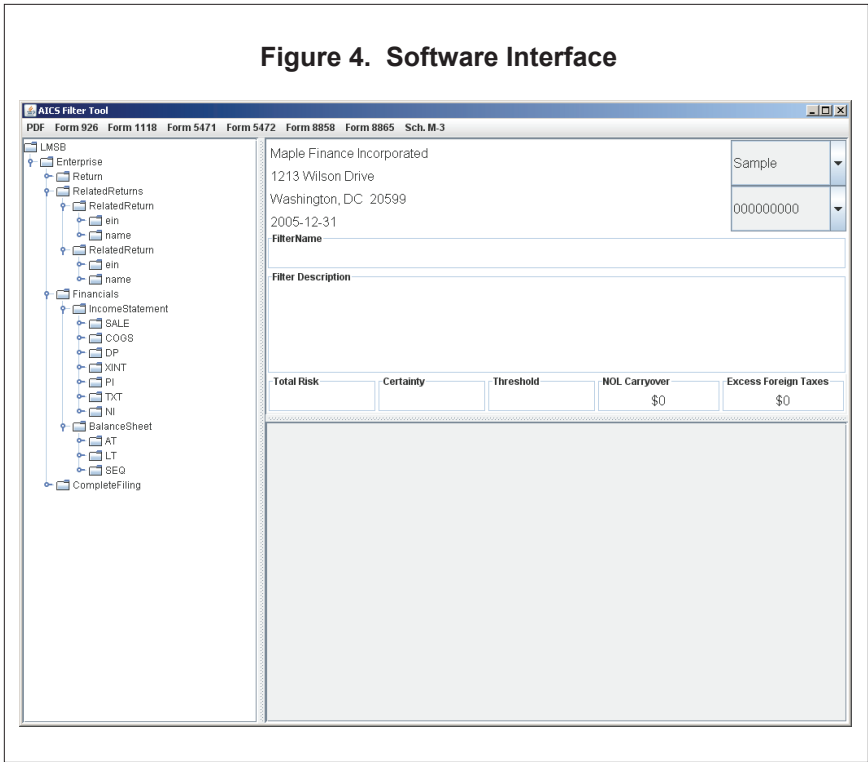
One of the significant impediments encountered in the development of the application concerns the XML schema and taxpayer compliance with the spirit of the schema. In particular, some nodes that are logically parent and child nodes are treated as sibling nodes in the XML schema. In cases where

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<sup>10</sup> The Form 1118 object (foreign tax credit) provides an illustration of the hierarchical object construction described above. The Form 1118 contains hierarchical data at four different levels: 1) parent; 2) basket; 3) foreign country; and 4) controlled foreign corporation. We create a Form 1118 object at the parent, or Form 1120, level. This parent object contains an array with references to objects for each basket. Each basket object contains an array with references to objects for each foreign country, and each foreign country object contains an array with references to objects for each CFC. Each object contains the data associated with its level in the hierarchy, methods for retrieving the data, and an array with references to objects one tier below in the hierarchy. The implication is that the analyst can retrieve data from Form 1118 and know precisely how it relates to all the other data. One may retrieve data for taxes deemed paid by a particular controlled foreign corporation and know the country of the CFC, the basket, and (obviously) the parent.

<sup>11</sup> There is a distinction between the tax compliance risk measures developed for the IRS and the software framework within which the tax compliance risk measures are executed. In fact, the framework was developed in the context of a series of Java programming courses Trautman took at the Harvard Extension School over the past several years. Trautman developed the framework using only open source software and other publicly available information, including a hypothetical XML tax return document made available by the IRS through its external Web site for such purposes. The framework was subsequently applied to the IRS's tax compliance risk measures. Similar frameworks could be developed from the same publicly available information for other tax administrations. Nothing in the framework relates to, is dependent on, or is a consequence of IRS policies, procedures, or resources.

<sup>12</sup> The application generates the results of analyses in XML format. As a result, in addition to being able to transform the results into PDF format, it is also possible to output the results into XHTML format. This means that it would be possible to interact with the application through a browser like Internet Explorer. This has important implications for the ultimate deployment of the application.



it is possible to have multiple parents (e.g., multiple controlled foreign corporations filing multiple Forms 5471), it is not clear *a priori* which child nodes (e.g., Schedules J, M, and O) are associated with which parent. The XML schema anticipates this problem and provides for reference attributes in the logical parent and child nodes which, in theory, establish a unique link. It appears, however, that some taxpayers are providing references in the logical parent nodes, not only to the logical children of these nodes but also to the logical children of other parent nodes. The effect of providing this additional information is to obfuscate the links between the logical parents and their logical children. It has been necessary, as a result, to perform cross-form comparisons in order to establish a unique link, but this does not work in all cases. A cleaner solution, which the authors of this paper advocate, is to change the XML schema so that the logical parents and children are required to be the actual parents and children.

Another significant impediment we have encountered is the fact that many LMSB taxpayers continue to file returns on paper, because the cur-

rent mandate applies only to taxpayers filing at least 250 returns. The data from these paper returns must be extracted and converted into an electronic format for compliance risk assessment. As a result, the paper-filed returns are available to examiners with preaudit risk assessment information for a shorter period of time than electronically filed returns. A current Administration proposal would eliminate this disparity and mandate that all taxpayers required to file a Schedule M-3 also file electronically.<sup>13</sup>

## Financial Information and Related Entities

The next phase in developing the application discussed above will be to incorporate financial statement information and information on related entities into the enterprise data structure at positions reflecting their positions in the business enterprise. These related entities would include:

- Domestic consolidated subsidiaries, which are enumerated on Form 851;
- Domestic unconsolidated subsidiaries, which are enumerated on statements attached to Form 1120, Schedule K of the tax-unconsolidated subsidiaries;
- Related partnerships, S corporations, and trusts, which are identifiable using information from Schedule K-1; and
- Other related entities included as part of the financial consolidated group but not the tax-consolidated group, which are identifiable using information on statements attached to Schedule M-3.<sup>14</sup>

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<sup>13</sup> The 2008 and 2009 President's Budget Blue Books (Treasury 2007, 71; and 2008, 74) each requested that mandatory electronic filing be extended to all returns requiring Schedule M-3 book-tax reconciliations effective for tax years ending on or after December 31, 2008. This proposed revised requirement would include all LMSB corporation and partnership tax returns (except for regulated investment companies and real estate investment trusts that do not file Schedule M-3) and approximately 20,000 smaller partnership returns required to file Schedule M-3 because they are controlled by LMSB corporations and partnerships or otherwise similar to LMSB partnerships. LMSB supports the proposal, but Congress has not yet addressed it.

<sup>14</sup> The source of information on the related passthrough entities will change for tax years ending on or after December 31, 2008, when corporations and partnerships will be required to identify their ownership relationships. Effective for tax years ending on or after December 31, 2008, corporations filing a U.S. corporate return Form 1120 must identify by name and taxpayer number any owner owning directly 20 percent or more of the voting stock and any owner owning, directly or indirectly, 50 percent or more of the voting stock. Previously, only direct ownership of more than 50 percent was identified. The indirect ownership reporting requirement is particularly important. The corporation must also identify any corporation or partnership it owns at 20-percent direct and 50-percent, direct or indirect, levels. Effective for tax years ending on or after December 31, 2008, partnerships filing a U.S. partnership return Form 1065 must identify by name and taxpayer number any owner owning, directly or indirectly, an interest of 50 percent or more in the income, loss, or capital. Previously, any direct ownership of any interest was identified on Form 1065 K-1, and this reporting continues. Again, the indirect ownership reporting requirement is particularly important. The partnership must also identify any corporation or partnership it owns at 20-percent direct and 50-percent, direct or indirect, levels.

We expect through this process to be able to capture information on all of the entities except for the indirectly owned corporations and passthroughs in Figure 1. With the ownership information that will become available on tax returns, we expect to be able to identify and also include the indirectly owned tax-unconsolidated corporations and indirectly owned passthroughs.<sup>15</sup>

The related partnerships, S corporations, and trusts are the most difficult to incorporate. The Schedule K-1 identifies by EIN (employer identification number) the entity filing the form (commonly referred to as the “payor”) and, by EIN or TIN (taxpayer identification number) the entity or individual receiving the form (commonly referred to as the “payee”).<sup>16</sup> The recipients (“payees”) of Schedule K-1 are the owners of the issuing (“payor”) entity. Since these entities may exist in tiered structures, it will be necessary to process the Schedule K-1 information recursively to identify all of the tiered entities in the business enterprise. The challenge is to reduce these paths or trees to a functional enterprise by introducing search rules to evaluate the level of ownership linking an owning entity to an owned entity. Indeed, the enterprise is comprised of all entities under effective common control, directly and indirectly. The fact that control may be exercised indirectly requires search rules attributing ultimate ownership.

The simplest search rule is to attribute to the parent of a consolidated group all the ownership of any corporate, partnership, or trust interest owned by any of its corporate subsidiaries. For example, it is common today (since the advent of the “check the box” rules in 1997, which allow many limited liability entities to elect to be treated as partnerships) for two subsidiaries of one parent to own all or substantially all of the partnership interest in an LLC (limited liability company). The LLC is essentially a substitute for a corporate subsidiary, but it files its own partnership tax return with details of its transactions, and it issues summary Schedules K-1 to the two subsidiary partners. The real owner from an enterprise viewpoint is the parent of the tax-consolidated group. The simple search rule attributes the ownership to the parent (often 100 percent) and identifies the LLC return as one that should be evaluated with the consolidated corporate return and included in the enterprise data structure.

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<sup>15</sup> The discussion of this paper at the 2008 IRS Research Conference included suggestions that ownership links between indirectly owned entities might be detected in electronic searches of payment data embodied in IRS Forms W-2 and 1099 and from real property tax and other title records.

<sup>16</sup> The recipient of the Schedule K-1 receives information on the share of income and losses of the issuing entity (“payor”) that the recipient (“payee”) must report on its U.S. income tax return. Note that the reported amounts on Schedule K-1 are of allocated income and losses and do not necessarily correspond to any distributions of cash (notwithstanding the common use of the “payor” and “payee” terminology).

More complicated search rules are required with tiered partnerships, that is, partnerships owning partnerships owning partnerships in complex structures. Search rules may be developed to attribute ownership proportionately as under Code section 267(c) (e.g., 50 percent of 50 percent is 25 percent). Alternatively, as in the consolidated group example, all interest owned by an owned entity may be attributed in full to the owner of the owned entity if that owner owns some threshold amount. Whatever rules are adopted, it is necessary to provide rules for adding all the ownership interests that an owning entity may have in an owned entity, directly or indirectly, through the multiple layers of the tiering.

## **Evolving Compliance Risk Assessment**

Using the approach outlined above, we believe we will be able to create an enterprise data structure contemporaneously with the filing of the electronic return(s). The data structure would include all the information available on a business enterprise, organized in a way that reflects the organizational structure of the enterprise. Although the enterprise data structure is still in an early stage of development in that it does not yet include financial information or information on related entities, it has already had significant results. Indeed, it has allowed the IRS to process a suite of domestic and international risk measures and generate reports in PDF format which have supported a number of Compliance Initiative Projects (CIPs).<sup>17</sup> The IRS is now in the process of making these reports available for new cases that are sent to the field.

## **Opportunities**

We believe that the ability to assess tax compliance risk in the context of these enterprise data structures opens up exciting opportunities in the area of tax shelter detection. Since all information on the business enterprise (including the structure of that information) is available programmatically, it is now possible to search for specific (including structural) conditions across the entire population of taxpayers. For example, if a four-tiered partnership with both direct and indirect ownership is indicative of an aggressive tax position, it would be possible to automate the search for such conditions across all taxpayers. It might also be possible to consider abstracting away from specific conditions and look for similar conditions. This would allow

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<sup>17</sup> A Compliance Initiative Project is a program for selecting tax returns that would not otherwise have been selected for audit.

the IRS and other tax administrations to begin to search proactively for tax shelter structures of which they were not yet aware.

These enterprise data structures can also help researchers understand the accounting of a particular economic entity. In particular, the data will allow comparisons of entities consolidated for financial versus tax purposes. This comparison can be supplemented by the Form 1120 Schedule M-3, which requires the reconciliation of worldwide financial income to U.S. taxable income, delineating the causes of the differences to consolidation or income reporting.<sup>18</sup> Furthermore, the eventual adoption of XBRL in SEC financial reporting will further allow efficient comparisons between financial and tax return information.<sup>19</sup> The triangulation of data can greatly enhance the ability of agents to properly and holistically analyze the economic enterprise, part of which is included on the U.S. tax return. For example, one can examine whether the decision to consolidate certain entities of the taxpayer on the tax return and/or on the financial statement systematically understates taxable income while keeping financial income high for external reporting purposes. This behavior is suggested to some degree in the findings of Lisowsky and Trautman (2007), but, going forward, the more advanced and flexible nature of XML data can facilitate such comparisons more broadly, efficiently, and accurately.

Finally, since enterprise data structures would contain all information on the business enterprise, it would be possible to model the enterprise as a profit-maximizing entity. The implication is that it would assist LMSB in distinguishing between economically efficient and tax-efficient behavior. One could simulate a series of changes in the information or the structure of that information and examine the effect of those changes on U.S. tax liability. For example, one could simulate the effect on U.S. tax liability if a subsidiary in a tax haven country did not exist. Further, one could simulate how the taxpayer would structurally reorganize in the absence of this entity, and then estimate the effect on U.S. tax liability. A series of such “what-if” scenario simulations could help administrators and economists understand *ex-ante* the tax liability sensitivities of certain characteristics of the enterprise as a way of measuring compliance risk without having to wait to obtain *ex-post* audit results information.<sup>20</sup>

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<sup>18</sup> The ability to compare financial information with tax information will improve with changes to the Schedule M-3 effective for tax years ending on or after December 31, 2008. Schedule M-3, Part I will require the reporting of financial statement total worldwide assets and liabilities, total assets and liabilities for entities included in the financial statement but not the tax return, and total assets and liabilities for entities included in the tax return but not the financial statement.

<sup>19</sup> XBRL is the eXtensible Business Reporting Language and is XML-compatible.

<sup>20</sup> A significant amount of time elapses between when returns are filed and when representative closed-case audit result information becomes available. This raises the question of the applicability of compliance risk estimation models that are optimized only on data from closed audit cases.

## **Workload Selection**

Once LMSB has developed an algorithm for estimating compliance risk, or the expected adjustment associated with auditing any given issue, it must then think explicitly about how to transform these risk estimates into a workload selection policy whose objective is to maximize long-run voluntary compliance. It is important to emphasize that maximizing long-run voluntary compliance is a significantly different notion than maximizing dollar audit results in the context of a 1-year audit plan. In particular, it would consider multiyear revenue effects, which is particularly important for taxpayers with net operating loss carryovers. It would also consider the indirect effects of the audit policy on long-run voluntary compliance. The effect on long-run voluntary compliance of auditing a less significant issue on a smaller taxpayer may, indeed, be higher than auditing a significant issue on a larger taxpayer. Finally, it would consider the locations of examiners and their skill levels, as well as the cost of the audit resources.

While these factors may be difficult to quantify, it does not mean that they are irrelevant or unimportant; ignoring them does not mean that they would not have implicit weights in any given resource allocation policy. However difficult it may be to quantify these factors, it is clearly better to be roughly accurate than precisely inaccurate. We believe that the explicit characterization of these values and weights would represent an important step in improving the LMSB resource allocation policy, in part because it would allow one to begin to critically assess the performance of the system.

## **Conclusion**

The electronic filing of tax returns in XML format makes it feasible to access programmatically all information on tax returns the moment the returns are filed. It also allows access in real time to financial statement information and information on related entities. Perhaps more importantly, the availability of open-source XML and object-oriented programming (OOP) technologies makes it possible to organize that information into enterprise data structures which capture the information and the organizational structure of the entire economic enterprise. These technologies, in turn, can create significant opportunities for distinguishing economically efficient from tax-efficient behavior and thereby for reducing the administrative burden on more compliant taxpayers. Indeed, because of the open-source software movement and the standardization of XML as a means of capturing tax and financial data, enterprise data structures can be constructed quite easily and used for tax compliance risk assessment not only by the IRS but by other tax administrations as well.



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## **Appendix: Tax and Financial Consolidation Rules**

This section follows from Lisowsky and Trautman (2007), which outlines the rules governing (1) tax consolidation under the Internal Revenue Code and (2) financial statement consolidation under Statement of Financial Accounting Standards No. 94 (SFAS 94) and Financial Accounting Standards Board Interpretation No. 46 (revised) (FIN 46(R)). It then describes the implications of the different book-tax consolidation rules on tax and financial statement reporting. We use the term "parent" to describe a U.S. corporation that is consolidating for tax or book purposes, and the term "subsidiary" to describe an entity (corporation or passthrough) that is consolidated onto the parent's tax return or financial statement.

### **A. Tax Consolidation**

The Internal Revenue Code (IRC) states that a subsidiary is consolidated with its parent's tax return when (1) the parent elects to consolidate (§1501) and (2) stock ownership, direct or indirect, by the parent is at least 80 percent of the subsidiary in terms of value and voting power (§1504(a)(1)). Foreign corporations are generally not included in the U.S. parent's consolidated tax return regardless of ownership stake (§1504(b)(3)) unless foreign-source income is repatriated as dividends to the U.S. parent, the income is classified as passive under Subpart F rules, or the parent makes a special election to include a Mexican or Canadian subsidiary. Also, a subsidiary may be included in the tax consolidation if the parent elects to treat this subsidiary as a disregarded entity. Real estate investment trusts (REITs), regulated investment companies (RICs), and Subchapter S corporations are not included in tax consolidation (§1504(b)).

If the subsidiary entity is a foreign or domestic partnership or limited liability company (LLC) treated as a partnership, the parent's share of income and losses are reported on the parent's U.S. consolidated tax return even if the 80-percent ownership threshold is not met. In these cases, the income and expense items "pass through" to the U.S. consolidated tax return based on the percentage owned. The tax return balance sheet (Form 1120, Schedule L) generally reports the assets and liabilities of entities included in the affiliated group. A passthrough subsidiary's assets and liabilities will appear on the consolidated parent's tax return if the parent accounts for its investment in the subsidiary using the tax-adjusted basis method or §704(b) basis method.<sup>21</sup> The tax-adjusted basis method allows the parent's share of the passthrough subsidiary's assets and liabilities to be carried on the parent's tax return balance sheet at historical cost. The method outlined in §704(b) allows for the parent's share of the subsidiary's assets and liabilities to be carried on the parent's balance sheet at fair value.

## B. Financial Statement Consolidation

A subsidiary entity, whether corporate or passthrough, is consolidated with the parent corporation for financial statement purposes if it is "controlled" by the parent, where percentage ownership is typically used (but not strictly necessary) to assess the level of control. Statement of Financial Accounting Standard No. 94, *Consolidation of All Majority-Owned Subsidiaries* (SFAS 94) (1987) states that, if an entity owns more than 50 percent of the voting interest of another entity, foreign or domestic, the group is required to be consolidated for financial reporting. If the parent owns more than 50 percent but less than 100 percent of the subsidiary, the parent must recognize a minority interest in the consolidated financial statements attributable to the voting interest the parent does not own.

If the parent owns between 20 percent and 50 percent of the subsidiary, the equity method is used. Under this method, the parent records its share of the subsidiary's profit or loss based on the percentage ownership interest, and an asset is reported on the parent's balance sheet for the corresponding investment in the subsidiary. Finally, if the parent owns 20 percent or less of the subsidiary, the cost method is used. Under this method, the parent entity records income only when dividends are received from its subsidiary.<sup>22</sup>

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<sup>21</sup> The parent may also account for the passthrough subsidiary using the cost method or the equity method, in which case the subsidiary's liabilities would not necessarily appear on the consolidated tax return.

<sup>22</sup> Currently, the Securities and Exchange Commission (SEC) requires use of the equity method for investments in limited partnerships, unless those investments are so minor (less than 3 percent to 5 percent) that the limited partner/investor has virtually no influence over partnership operating and financial policies (Warren, Gorham, and Lamont, 2007).

Special consolidation rules exist in cases where ownership does not necessarily translate into control. *Financial Interpretation No. 46 (revised), Consolidation of Variable Interest Entities, (FIN 46)(R)* (2003) outlines such rules for Variable Interest Entities, better known as Special Purpose Entities (SPEs). According to *FIN 46(R)*, SPEs are consolidated on the parent's financial statement when additional (residual) returns or losses accrue to the parent exceeding its original investment stake in that SPE. The guidance in *FIN 46(R)* states that a parent can avoid consolidating an SPE when more than 10 percent of the entity is capitalized by outside (i.e., nonparent) sources (§ 9). So, in the case of SPEs, the conventional *SFAS 94* consolidation rules do not apply.<sup>23</sup>

In addition to making quantitative assessments, firms are permitted under *FIN 46(R)* to also consider qualitative features of the SPE to determine whether or not to consolidate it. In fact, some have asserted that this qualitative assessment can be used as a reason ("excuse") not to consolidate SPEs onto the financial statements (Ketz, 2008).

Previous financial consolidation guidance stated that an SPE need not be consolidated if at least 3 percent of its equity is owned by outside equity holders (*Emerging Issues Task Force 90-15* (1990)). This guidance first established the major departure from the typical *SFAS 94* consolidation rule of more-than-50-percent ownership; this departure continues to a lesser degree in *FIN 46(R)*. In fact, this 3-percent guidance was one of the financial reporting loopholes exploited by Enron, where it would recognize gains by selling poor-performing assets to a highly levered, 97-percent-owned off-balance sheet SPE. SPEs of this nature are typically structured as general or limited partnerships or LLCs, but may also include trusts.

To illustrate the current financial consolidation issue at hand, the recent U.S. subprime mortgage crisis has revealed that banks were exposed to trillions of dollars worth of risk, which was not consolidated on the financial statements. One example is Citigroup, which for the most part was not consolidating structured investment vehicles (SIVs). They were able to classify a majority of SPEs and SIVs as "Qualified Special Purpose Entities" (QSPEs) following FASB Statement No. 140, *Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities*. This standard states that QSPEs are generally exempt from consolidation by the transferor of assets (typically the parent corporation). Only in its recent 2007 financial statements did Citigroup begin disclosing some SIV activity, perhaps due to increased investor and regulatory scrutiny. However, out

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<sup>23</sup> However, additional financial statement disclosures are required regarding the parent's maximum possible residual loss due to its investment in the SPE.

of \$1.24 trillion in SPE investments, less than 10 percent, or only \$121.8 billion, were actually consolidated on Citigroup's 2007 financial statements (Citigroup Annual Report, 86). Unconsolidated QSPEs accounted for almost \$766 billion, while significant unconsolidated VIEs (SPEs) accounted for over \$356 billion. In short, even in the post-Enron, post-*FIN 46(R)* regime, and under increased regulatory and investor scrutiny, over 90 percent of Citigroup's SPE financing was not consolidated in its financial statements. Citigroup is only one example, but it illustrates vividly the consolidation issue at hand.

### C. Book-Tax Consolidation Differences

After reviewing the financial and tax consolidation rules in isolation above, it is important to note where the rules overlap, and where they do not.<sup>24</sup> Financial statements include some items not included on the tax return. These are:

- (1) Greater than 50-percent-owned foreign subsidiaries;
- (2) Greater than 50-percent to less than 80-percent-owned domestic subsidiaries; and
- (3) For 20-percent to 50-percent-owned companies, the percentage ownership in the net equity of companies.

In contrast, tax returns include some items not included on the financial statement. These are:

- (1) Dividends from unconsolidated subsidiaries, reduced by the dividends received deduction for dividends from domestic corporations;<sup>25</sup>
- (2) All income for all domestic subsidiaries that are at least 80-percent owned, with no reduction for minority interest;<sup>26</sup> and
- (3) Entities classified as SPEs for financial reporting purposes that are consolidated on the tax return.

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<sup>24</sup> This discussion follows from Mills, et al. (2002), p. 1115.

<sup>25</sup> The parent can claim a 70-percent deduction for dividends received from less-than-20-percent-owned (unconsolidated) subsidiaries, an 80-percent deduction for dividends received from 20-percent-to-less-than-80-percent-owned (unconsolidated) subsidiaries, and a 100-percent deduction for dividends received from 80-percent-or-more-owned (consolidated or unconsolidated) subsidiaries.

<sup>26</sup> However, if the subsidiary is more than 20-percent owned, the dividends are reduced by the applicable percentages outlined above. All dividends paid to the parent by a less-than-20-percent-owned subsidiary are subject to U.S. tax; there is no dividends received deduction.



**3**



**Innovative Approaches to Improving  
Tax Compliance**

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# Encouraging Filing via Tax Credits and Social Safety Nets

*James Alm, Georgia State University;  
Todd Cherry and Michael McKee, Appalachian State University;  
and Michael Jones, Bridgewater State College*

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A nontrivial fraction of the noncompliance associated with the personal income tax is due to individuals who are not “in the system,” not having filed a tax return in the recent past or perhaps ever. Erard and Ho (2001) have referred to those who have not filed as “ghosts,” and have investigated the extent to which this phenomenon contributes to the tax gap. This phenomenon is most prevalent among middle-to low-income persons who are often “under the radar” of the tax authority because they receive income not subject to third-party withholding. While the tax owed by such persons on their incomes is individually small, the aggregate amount contributes substantially to the tax gap, perhaps as much as \$27 billion in Tax Year 2001. A problem confronting policymakers is how to encourage these individuals to join the system by filing a tax return. The payoff to the government from such inclusion may be very high, and evidence suggests that once individuals initially file a tax return they continue to do so in the future.

There are several potential avenues for encouraging tax filing. One prominent class of policies encouraging tax participation is the receipt of direct benefits under various income transfer programs and public sector pensions, including social insurance programs like Social Security. Receipt of benefits associated with these programs can be used to encourage tax filing since being “in the system” may be a condition for eligibility. The use of tax credits like the Earned Income Tax Credit (EITC) and the child care tax credit to affect participation is a more targeted approach. The behavioral issues in all cases include the role of risk attitudes, the prevalence of present-biased preferences (i.e., myopic decisionmaking), and the impact of the compliance costs associated with taking advantage of these programs. For example, the EITC is somewhat complicated, and this feature has probably led to lower participation.<sup>1</sup>

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<sup>1</sup> There also exist other policies that may increase compliance and participation. Anxiety reduction for potential taxpayers as they approach the tax agency (i.e., emphasizing a “kinder, gentler, tax agency”) may increase compliance and participation. Research has shown that taxpayers respond to positive inducements to comply (Alm, Jackson, and McKee, 1992), but there may be consequences of such positive inducements on initially compliant taxpayers. Tax amnesties can be an effective means of allowing taxpayers to “wipe the slate clean” if they have evaded taxes in the past (Alm, McKee, and Beck, 1990). Similarly, perceptions of fairness have a significant effect on individual decisions (Cherry and List, forthcoming). Also, some current tax policies often permit individuals to claim losses from some classes of earnings (e.g., capital gains, self-employment income) against income taxes

*Footnote continued on next page.*

The difficulty in assessing the effects of such policies is the obvious one: any such effects depend on the behavioral responses of individuals currently not filing tax returns and so not currently observable by the tax authority. Indeed, studies of nonfiling using field data are not numerous. While compliance behavior is difficult to observe in the field, nonfiling is even more hidden. Crain and Nourzad (1993) compared the characteristics of those who evade while filing versus those who choose simply not to file. In the most detailed and comprehensive study of nonfiling, Erard and Ho (2001) use IRS information to estimate the factors that affect nonfiling. Also, see Alm, Bahl, and Murray (1991) for an analysis of nonfiling in Jamaica.

As with all studies based on field data, these studies suffer from not having direct measures of noncompliance (e.g., the use of reported income, not unreported income), from being forced to contend with various econometric issues (e.g., the endogeneity of audit selection arising from budgets for audit activities), and from not being able to control for all variables that might affect taxpayer reporting decisions (e.g., changes in the tax laws, taxpayer attitudes, economic conditions). Further, there are few changes in the rules for tax credits and/or income support programs, and such changes as do occur are often confounded with other effects such as changes in macroeconomic conditions.

Some quasi-natural experiments have also been studied. The introduction of the EITC has provided an opportunity to observe changes in the characteristics of filers. Most recently, one could study the effects of the Bush Administration “stimulus package” tax rebate checks on the filing behaviors of citizens, although those data are not yet available. In the case of the EITC, Scholz (1994) uses 1990 Survey of Income and Program Participation (SIPP) data, and finds that the participation rate for the EITC is between 80 percent and 86 percent. See also Kopczuk and Pop-Eleches (2007).

Since it is the behavioral responses of individuals whom the tax authority cannot directly observe that are of interest, the laboratory is a natural arena to investigate the effects of policies aimed at increasing tax participation. Although there are numerous experimental studies that examine

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imposed on other wage and salary income, but only if the individual files a tax return. While these policies are typically understood as focusing on higher-income taxpayers, the programs also affect middle- and low-income taxpayers and those working outside the purview of the tax authority (e.g., individuals with part-time self-employment or with cash only businesses). Provided an individual has taxable income from wages and salaries, he or she can benefit from the use of offsets. Indeed, the presence of loss offsets may encourage individuals to undertake entrepreneurial activities involving some risk of incurring losses. “Social norms” may also affect tax compliance. There has been work in this area, and the results suggest that such motives can have a positive effect on compliance. Even so, there has been little literature on filing itself. See, for example, Cummings, Martinez-Vazquez, McKee, and Torgler (forthcoming).

behavioral responses of those individuals who already file a tax return (e.g., Becker, Buchner, and Sleeking, 1987; Webley et al. 1991; Alm, Jackson, and McKee, 1992; Alm, Jackson, and McKee, 1993; Gerxhani and Schram, 2006; Cummings, Martinez-Vazquez, McKee, and Torgler, 2008), there are, so far as we can ascertain, no experimental analyses of filing inducements, in which subjects have the option to file or not to file a tax return.

Accordingly, our research here is directed at assessing the effects on filing of reinforcing the social insurance aspect of the fiscal system and of providing tax credits, either of which is received only if the taxpayer files a return. To examine these issues, we introduce in a controlled laboratory setting various filing inducements, including social safety nets and tax credits. Our results are preliminary, but suggest that such inducements can increase tax filing, with the most effective policy being tax credits that are simple to obtain.

## **The Filing Decision**

The traditional theoretical development of the compliance decision typically begins with the assumption that the individual has already chosen to file a return. Evasion is then modeled as a gamble in which the states of nature are being caught or not being caught, where, if caught, a fine is assessed (Allingham and Sandmo, 1972). The individual then decides only the amount of income to report and so the amount to evade. A rational individual is viewed as maximizing the expected utility of the tax evasion gamble, weighing the benefits of successful cheating against the risky prospect of detection and punishment. The individual pays taxes because he or she is afraid of getting caught and penalized if he or she does not report all income. This approach gives the plausible and productive result that compliance depends on audit rates and fine rates. Indeed, the central point of this approach is that an individual pays taxes because—and only because—of this fear of detection and punishment. See Andreoni, Erard, and Feinstein (1998), Alm (1999), and Slemrod and Yitzhaki (2002) for comprehensive surveys and discussions of this literature.

This compliance decision has been extensively investigated using field and lab data. For those who file, the traditional recipe of increased audits and/or increased penalties is the recommended policy for increasing compliance, subject of course to taxpayer awareness of the enforcement effort increase (Alm, Jackson, and McKee, 2007).

Of perhaps more interest is the issue of the filing decision. To the extent that nonfilers are not “in the system” and so are not at risk of being

selected for audit, the traditional policy response of increased enforcement efforts is not effective.<sup>2</sup> Indeed, the traditional Allingham and Sandmo (1972) analysis does not fully capture this key element of the individual's decisions.

For the filing decision, the individual must compare the expected utility from filing versus the expected utility from nonfiling, where an individual who files must also then determine the amount of income to report on the return (e.g., the compliance decision). Erard and Ho (2001) expand the traditional model to include both the filing and the compliance decisions, by constructing a sequential decision process that includes such steps as the choice of income withholding, the decision to file, and the compliance decision. The framework is an extension of the typical "gamble" model of evasion, but incorporates the more realistic setting that reflects the true decision setting of the taxpayer. In their framework, the decision to not file is influenced by the costs of filing, the probability of being identified as a nonfiler, and the penalties for not filing. To these, one should also incorporate the potential benefits from such tax credits as may exist and the existence of a social safety net where the benefits and/or coverage may be conditional on prior tax filings. Both the tax credit and the expected value of the social safety net represent positive inducements to file. It is these positive inducements that our experimental design investigates.

## **Experimental Design**

The experimental design captures the essential features of the voluntary income reporting and tax assessment system used in many countries. Human participants in a controlled laboratory environment earn income through their performance in a task. The participants must decide how much of this income to report to a tax agency. Taxes are paid on reported income only. However, unreported income may be discovered via a random audit, and the participant must then pay the owed taxes plus a fine based on the unpaid taxes.<sup>3</sup> This income earning, income reporting, audit, and penalty process is repeated over a number of rounds that each represent a tax period. At the

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<sup>2</sup> Most audit schemes are based on factors that are reported on tax returns and that past audit results indicate are associated with large amounts of unreported income (e.g., the Internal Revenue Service use of a "DIF" score). Individuals who do not file a return are obviously not at risk of audit from such audit schemes.

<sup>3</sup> It may be argued that current audit practice in many countries also implements endogenous audits, since a taxpayer either elicits an audit or not depending on his or her "score" in an audit rule. However, whether a taxpayer is actually audited depends both on the score and on the audit budget of the tax authority. Since the taxpayer cannot know this latter item with certainty, there remains a random component to the audit process. See Alm and McKee (2004) for an experimental examination of this type of endogenous audit selection rule.

completion of the experiment, all participants are paid in cash their laboratory market earnings converted to U.S. dollars.

These experiments are designed to inform policymakers, and so must satisfy the experimental precept of “parallelism” (Smith, 1982). Parallelism is satisfied when the experimental setting captures the essential elements of the decision problem faced in the naturally occurring setting. It is neither necessary nor desirable that the experimental setting implement all of the complexity of the naturally occurring setting (Plott, 1987). As implemented, our experimental design follows the elements of much of the earlier experimental research, but incorporates additional features to improve parallelism with taxpayers’ decisionmaking in the naturally occurring world. Participants earn income by performing a task (rather than receiving an endowment), they must choose how much income to report, and they face an audit process similar to that in the naturally occurring setting. Importantly, participants must choose whether or not to file a return. The experiments utilize tax language in the instructions and the computer interface. While the stakes are small, the decision is also simplified, implying that the ratio of decision costs to rewards parallels the naturally occurring setting.

Participants are recruited from the pool of undergraduate students at a major public university. On arrival at the laboratory, participants are assigned to a computer station. The lab server assigns participants to groups (consisting of seven to ten persons depending on the total number of participants in the session). Basic instructions are provided via hardcopy, while the main instructions are provided via a series of screen images. After the practice rounds are completed, any final procedural questions are answered. Participants are not allowed to communicate with one another during the session. They are not told the exact duration of the experimental session, which is predetermined to last for 20 real rounds. Sessions take on average 70 minutes to complete. Participant earnings range from \$14 to \$38, depending on task earnings, reporting behavior, and audit experience. Participants are told that payments will be made in private at the end of the session and that all responses are anonymous.

The earnings task requires participants to sort the digits 1 through 9 into the correct ascending order from a randomized order presented in a 3 by 3 matrix. Participants do this by pointing the computer mouse and “clicking” on the numbers in the correct sequence. On their computer screens, a 3 by 3 matrix with the digits in random order appears on the right side of the screen; as the numbers are “clicked,” they appear in a 3 by 3 matrix on the left side of the screen. A counter on the screen shows the elapsed time from when the first number is “clicked” and also when all nine numbers have been ordered. Participants click the Continue button to transmit this

time to the server. Actual income is then determined by the relative speed of performance, with the fastest performer receiving the highest income and the slowest performer receiving the lowest income. Once all participants have completed the income task, they are informed via the computer of their incomes for the round and presented with a screen that provides details of the policy in effect, where they are informed of the tax rate, the audit probability, and the penalty rate on discovered evasion. For the credit treatments, participants are informed of the level of the tax credit they are eligible to receive and that this is conditional on filing a tax return. For the income support treatments, participants are informed of the probability of being unemployed, the duration of unemployment, and the income support they are eligible to receive. The unemployment benefits are determined as follows. The number of filing periods for eligibility is stated in the instructions, and the benefit is a stated percentage of the average of the incomes filed during the periods required for eligibility.

The tax form is not provided at this point. Participants may choose to get a form or not, where there may be a cost for the form. If participants choose not to obtain a tax form, then they do not file and are not subject to an audit in the current round. If participants choose to get the form, then the cost, if there is one, is deducted from income for the round. Even if participants obtain the form, they may still choose not to file by selecting the Not File button. Since the tax filing season is limited, there is a time limit imposed (75 seconds), and a counter at the bottom of the tax form informs participants of the time remaining. If the time expires and a tax form has not been filed, participants are automatically audited, and an additional 10 percent penalty is imposed.

At the end of the session, participants complete a short questionnaire asking age, gender, and whether they prepare and file their own taxes. If they respond “No” to this last question, we assume that their parents are responsible for tax preparation, given that participants are college sophomores, juniors, and seniors.

The process of determining who is audited is generated by a computerized draw. After the return is filed, participants are presented with an animated (computerized) representation of a bucket from which a draw is made. In this bucket, there are 10 blue and white balls in total, with a white ball signifying no audit and a blue ball denoting an audit. Each taxpayer is audited independently. The balls “bounce” in this bucket, and, after a randomly determined interval, a door opens, and a ball exits the bucket through this door. The color indicates whether the taxpayer will be audited. Participants choosing not to file a tax return are presented with a screen that informs them that they will not be audited in the current round.

After the audit process has been completed, taxpayers are presented a new screen that provides earnings and audit outcome summaries for the round. When group audit outcomes are provided, the end-of-round information screen reports the number of audits conducted in the current round and the fines collected via audits in the current round.

As part of our investigation, we incorporate the effects of complexity on the propensity to claim the credit because a credit that is not claimed is unlikely to enhance filing. We also incorporate the role for taxpayer information services, following on the preliminary investigations reported in Alm, Jones, and McKee (2007). Complexity is introduced in the experimental setting through the use of “fuzzy” information concerning allowed tax deductions and refundable tax credits.

Our overall objective is to examine the effects on tax filing of potential inducements to file a return, and we set out some basic inducement programs to investigate. These are outlined in Table 1. Our focus is on the use of tax credits and the income protection offered through unemployment benefits. To establish a baseline, we have conducted sessions in which these inducements are absent but the other features of the tax filing regime are incorporated. The no inducement treatments are described in Table 2. The tax rate is set at 35 percent in all rounds of all sessions. The audit probabilities range from 0.2 through 0.4 with three values in use in each session. The rate is set for the first 8 rounds, changes for the second 8 rounds, and reverts to the original level for the final 4 rounds; for example, in Table 2, the audit rates for NI1 are 0.4 for 8 rounds, 0.3 for 8 rounds, and 0.4 for the final 4 rounds. Participants are instructed that the rate may change during the course of the session but are not told the specific pattern. In all cases, the onscreen bingo cage shows the audit rate as the number of blue balls among 10 in the cage.

The tax form may cost from zero to two lab dollars, and this information is presented at the time of choosing whether to obtain the form. The tax form cost represents the general cost of filing incurred, in addition to the cognitive cost of completing the form.

**Table 1. General Treatment Design for Investigation of Inducements To File**

Treatment	Sample Parameters		
No Positive Inducement	Cost of Tax Form and Probability of Audit		
Refundable Tax Credit	Conditional on Low Income	Available to Low and Medium Income	Available to All Income Levels
Income (Employment) Risk	Support: Moderate Percentage of Previous Income	Support: High Percentage of Previous Income	



**Table 2. No Inducement Conditions**

Treatment	Tax Rate	Audit Probabilities	Penalty Rate	Deduction	Income Range	Form Cost
NI1	35%	0.4, 0.3, 0.4	150%	15%	10 to 100 1 per level	2, 1, 0

The first set of filing inducements is the use of tax credits targeted at lower-income taxpayers. This targeting is typically motivated by equity concerns, but it has the collateral effect of addressing a specific set of ghosts—those with lower incomes who may well be earning incomes that are not matched by employer records submitted to the tax authority.<sup>4</sup> The basic tax credit settings are shown in Table 3 as CT1 and CT2, where “CT” denotes “Credit Treatment” and where the key difference is the targeting of the tax credit to the lower-income earners. One issue arising from tax credit programs is the complexity of the filing requirement necessary to claim the credit. The EITC provides a case in point, and Alm, Jones, and McKee (2007) examine complexity and the related information services provision by the tax authority.

**Table 3. Tax Credit Settings**

Treatment	Income Range	Penalty Rate	Audit Probability	Credit Equation
CT1	10 – 100 1 per level	150%	0.3, 0.4, 0.3	$CR = 20 - 0.2 \cdot I$ (Moderate Income Credit)
CT2	10 – 100 1 per level	150%	0.3, 0.4, 0.3	$CR = 30 - 0.6 \cdot I$ (Low Income Credit)

Notes: The “Income Range” 1 is 10 (“Low”) to 100 (“High”), with increments of 10 and 1 person per level. The credit equation reports the intercept (e.g., the base credit) and the reduction in the credit as income increases. For example, if  $CR = 20 - 0.2 \cdot I$  (“Moderate Income Credit”), then the base credit is 20 lab dollars; if the participant earns, say, 60 lab dollars, then the credit is 8 lab dollars; the credit goes to zero at 100 lab dollars. In the “Low Income Credit” setting, the base credit is set at 30 lab dollars, and the credit drops to zero when the participant has earned 50 lab dollars.

The other inducement investigated here is the presence of an income program that pays (unemployment) benefits in the event of the individual becoming unemployed. Payment of benefits is conditional on the previous filing history of the individual. Specifically, benefit payouts are computed as a stated percentage of average income filed in previous periods. The parameters in effect for this series of sessions are shown in Table 4, where “UT” denotes “Unemployment Treatment.” Audit probabilities and cost of the

<sup>4</sup> Alm, Deskins, and McKee (2008) investigate experimentally the filing behaviors of individuals earning income not subject to the type of matching paperwork usually associated with formal sector earnings.



tax form are set at levels in the baseline and credit treatments so that we can focus on policy parameters specific to the unemployment benefits program and on effects of the risk of becoming unemployed. Thus, in Table 4, we introduce as treatments the percentage of the income that will be replaced by unemployment benefits and the filing periods necessary to qualify for benefits.

During periods of unemployment, participants do not see an income earning task screen. Instead, they are presented a screen informing them that they are unemployed and that this is round X of unemployment period of duration Y. The unemployment benefits are taxable. Thus, participants are presented a screen informing them of the unemployment benefits (if any) that they will receive in the current round and the opportunity to obtain a tax form or not. If participants file a tax return reporting unemployment benefit income, they are subject to the normal audit process. If participants choose not to file, they are not audited.<sup>5</sup>

**Table 4. Income Support Settings**

Treatment	Probability of Unemployment	Percentage Benefits	Filing Periods Required	Audit Probabilities	Form Cost
UT1	0.4 and 0.2	0.5	2	0.3, 0.4, 0.3	2, 1, 0
UT2	0.4	0.6	2	0.3, .04, 0.3	2, 1, 0

The instruments applied here are largely intended to target lower-income taxpayers. The experimental setting has an income range that represents a low-to-moderate-income range. The tax credits apply to 50 percent to 90 percent of income earners, and the unemployment benefit safety net pays out 50 percent to 60 percent of average earnings. Because of this targeting, the net tax yield from participants in all of these settings is quite small when the proposed programs are implemented. For settings in which there are 10 participants in a group (the typical case), the income distribution ranges from a high of 100 lab dollars to a low of 10 lab dollars, and total income is 550 lab dollars; at a tax rate of 35 percent applied to net-of-deduction (15-percent) income, the tax yield for full compliance is 110 lab dollars per round. By way of comparison, the per round cost of the Moderate Tax Credit is 90 lab dollars, and the per round cost of the Low Income Tax Credit is 60 lab dollars; for the social safety net (unemployment insurance), there is an expected cost (under full compliance and filing) of 90 lab dollars. Thus,

<sup>5</sup> Of course, it is true that, in the naturally occurring world, individuals who do not (but should) file a tax return may be detected through, for example, the IRS Automated Underreporter program. Even so, the probability that a given case will be worked is generally low due, among other things, to IRS resource constraints.

net yield to the tax authority of encouraging tax filing will generally be small. Nevertheless, the objective is to increase filing, and it is this behavior that we analyze here.

Our hypothesis is that filing will increase under inducements offered by the tax credit and social safety net provisions. The next section discusses our preliminary results.

## Preliminary Results and Discussion

One hundred and six subjects participated in twelve sessions, each lasting between 18 and 20 rounds, thereby yielding 2,126 observations. Treatment variables include the cost of obtaining the tax form ("Form Cost"), the audit probability, the opportunity to claim a credit ("Credit"), the availability of group audit information, the availability of unemployment benefits, and whether unemployment is possible. Observed outcomes include the subject's earned income ("Income Earned"), whether the subject bought the tax form ("Form Bought"), and whether the subject filed the form ("Form Filed"). Subjects averaged 20 years of age, and just over half were female (51.9 percent). The typical participant earned nearly 51 lab dollars per round, bought a tax form about 61 percent of the time, and filed the form nearly 59 percent of the time. There was considerable variance across subjects and rounds.

Given the complex nature of the experimental design, simple tests of hypotheses provide limited insight on treatment effects. We therefore proceed directly to a conditional analysis at the individual level to estimate treatment effects while holding other factors constant. We predict that the propensity to file will be increasing in the size of the direct inducements and in the perceived effect of the social safety net. Since there are two decisions in each period (three if we include the compliance decision), we analyze the decision to obtain a form and the decision to submit or file the form separately.

We estimate the following empirical model:

$$T_{i,t} = \beta_1 + \beta_2 P_i + \beta_3 I_i + \beta_4 p(A)_{i,t} + \beta_5 C_i + \beta_6 U_i + \beta_7 LB_{i,t-2} + \beta_8 (I^*C)_i + \psi_t + u_i + \varepsilon_{i,t},$$

where the dependent variable  $T_{i,t}$  denotes subject  $i$ 's decision to buy or file a tax form in period  $t$ ;  $P_i$  is the price subject  $i$  must pay to obtain a tax form;  $I_i$  is subject  $i$ 's earned income;  $p(A)_{i,t}$  is the audit probability for subject  $i$  in period  $t$ ;  $C_i$  and  $U_i$  are indicator variables that signify the presence of a tax credit and unemployment benefits for subject  $i$ ;  $LB_{i,t-2}$  is an indicator variable that signifies that subject  $i$  received unemployment benefits two periods prior;  $(I^*C)_i$  is an interaction term between income and credit for subject  $i$ ;  $\psi_t$  is a set of  $T-1$  dummies that capture potential nonlinear period effects;  $u_i$  is for random effects that control for unobservable individual characteristics;  $\beta_j$

is the constant term; and  $\varepsilon_{i,t}$  is the contemporaneous additive error term. The dataset constitutes a panel with 106 subjects making a series of 20 decisions over time. Since the dependent variables are binary, we estimate all relations using a panel probit estimation (Wooldridge, 2002).

From this basic specification, we estimate a “Form Bought” model ( $T_{i,t} = 1$  if the form is bought, and 0 otherwise), and also a “Form Filed” model ( $T_{i,t} = 1$  if the form is filed, and 0 otherwise). For each model, one specification controls for unobserved subject heterogeneity (denoted “1W”), while the other controls for both subject heterogeneity and time period effects (“2W”); Hausman tests suggest time effects are insignificant, but estimates are reported for completeness. Table 5 presents the estimation results.

**Table 5. Econometric Results**

Independent Variable	Dependent Variable			
	Form Filed 1W	Form Filed 2W	Form Bought 1W	Form Bought 2W
Constant	-0.779* (0.416)	-0.541 (0.452)	-0.295 (0.539)	-0.235 (0.532)
Form Cost	—	—	-0.309* (0.182)	-0.303* (0.160)
Income Earned	0.004*** (0.002)	0.004*** (0.002)	0.006*** (0.002)	0.005*** (0.002)
Audit Probability	0.589 (0.722)	-0.036 (0.813)	0.895 (0.725)	0.540 (0.821)
Credit	1.406*** (0.401)	1.414*** (0.406)	1.111*** (0.443)	1.123*** (0.447)
Income Earned X Credit	-0.012*** (0.003)	-0.012*** (0.003)	-0.011*** (0.003)	-0.011*** (0.003)
Unemployment Benefit	0.788** (0.397)	0.735* (0.403)	0.419 (0.463)	0.395 (0.467)
Unemployment (lagged 2 periods)	0.269** (0.139)	0.338*** (0.142)	0.273** (0.140)	0.324** (0.143)
Wald Chi-square	31.14***	50.73***	35.21***	46.44***
Log likelihood	-921.61	-911.10	-913.11	-907.03

Notes: \*denotes significance at 0.1 level, \*\* denotes significance at 0.05 level, and \*\*\* denotes significance at 0.01 level.

Estimates reported in Table 5 indicate that positive inducements encourage filing, where these inducements are measured by “Credit” (equal to 1 if the tax credit is present, and 0 otherwise) and “Unemployment Benefit” (defined as the percentage of income replaced by unemployment benefit in the event of unemployment). By providing a tax credit, individuals significantly increased the buying and filing of tax forms ( $p < 0.01$ ), though this pos-

itive effect diminishes with income, as indicated by the negative coefficient on the “Income Earned” X “Credit” interaction variable (see below). The presence of unemployment benefits also significantly increases filing (“Form Filed”), though no significant effect appears in the “Form Bought” models. The influence of unemployment benefits is clearly evident when considering the change in behavior after receiving benefits. Individuals significantly increase participation (buying and filing) after receiving unemployment benefits. As expected, the likelihood of purchasing a tax form is negatively related to the cost of the form (“Form Cost”). Recalling that the probability of an audit should not matter to subjects, our estimates in fact indicate that changes in the “Audit Probability” have no significant effect on participation. Lastly, our estimates indicate that the level of “Income Earned” is positively related to participation.

Based on the tax credit formula (see Table 3), the tax credit is directed toward lower-income participants. Thus, in the tax credit treatments, we predict that the credit will increase filing but only among the target population; that is, compliance will be negatively correlated with income. Indeed, we find this result, as the coefficient on the interaction term “Income Earned” X “Credit” is negative and significant.

The complexity of the setting limits our ability to simply compare behavior across policy instruments. Nevertheless, such results are interesting, and we provide a brief discussion of the filing behavior across treatments. The aggregate data are presented in Table 6. All of the filing inducement programs increase the propensity to file relative to our baseline setting. The social safety net increases the propensity to file but not by as much as the presence of the tax credit. The targeted (Low Income) tax credit increases tax filing by approximately the same amount as does the more general (Moderate Income) tax credit.

**Table 6. Aggregate Filing Behavior**

Treatment	Frequency of Filing	Frequency of Obtaining Form	Cost of Specific Program
No Inducement	0.445	0.460	N/A
Credit (All)	0.624	0.660	N/A
Credit (Low Income)	0.610	0.665	60
Credit (Moderate Income)	0.630	0.655	90
Social Safety Net	0.561	0.579	90 (expected)

Comparing the filing behavior impacts with the costs of running the various programs is an interesting policy exercise. As we discussed above, the costs of these programs vary considerably. The average (per round) costs are also reported in Table 6. The broader (Moderate Income) tax credit program and the social safety net program are costly. The narrower (Low Income) tax credit program yields the largest increase in both filing and form acquisition propensity. As in many other instances, it appears that targeted programs yield superior results.

## Conclusions

Encouraging filing has important policy implications. Our experimental results are preliminary, but they indicate several promising strategies for encouraging greater tax filing rates. In particular, targeted tax credits that are simple to obtain appear to have some potential for encouraging tax filing. Future work will further address such issues as the effects of the cost of filing on form acquisition, the potential interaction of inducement instruments, and the potential interaction of inducements and complexity/information.

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# **Comments on Innovative Approaches To Improving Tax Compliance\***

*Jane G. Gravelle, Congressional Research Service*

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## **Encouraging Filing via Tax Credits and Social Safety Nets, by James Alm, Todd Cherry, Michael McKee, and Michael Jones**

**T**his study addresses nonfilers and uses an experimental approach to study incentives to file, examining the effects of credits and employment inducements.

Experiments are viewed with suspicion generally, at least by economists. The vast majority of empirical research is based on the use of statistical techniques applied to observed behaviors, to glean information on behavioral response. Experiments may be used when statistical approaches are not feasible, and they may tell us something under particular circumstances. Is this one? Possibly not.

First, the experimental group used in the study is different from taxpayers in important ways. Undergraduate subjects are readily available in a university setting and will work for small wages. Undergraduate volunteers, however, differ from the taxpayer population in very important ways. Many have little experience with filing tax returns. Their socioeconomic backgrounds, ages, maturity levels, and many other aspects differ from the nonfiling population, which largely constitutes self-employed, informal sector workers, and elderly individuals.

Second, the experimental environment lacks many of the circumstances that affect real-life taxpayers, including duty and fear of the IRS. The monetary amounts involved are small in the experiment as compared to amounts for actual taxpayers. Information is not always automatically supplied but must be located by the taxpayer. Also, in a real-life environment, there is time to think over what one intends to do rather than need to make an instantaneous decision, and there is a learning experience for the future.

Most importantly, however, the experiment is not related to the important issues of tax evasion and the tax gap. It is not clear how an experiment

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\* These views do not represent the views of the Congressional Research Service.

that gives participants a benefit for filing their tax returns will induce taxpayers to file actual returns. Such a result would apply to the issues of taxpayers not filing returns because they are trying to avoid paying taxes. In addition, comparison of data sets suggests that the bulk of the nonfiling population is comprised of elderly taxpayers who do not file because there is no need to file. The magnitude of nonfiling outside that group and outside of the group receiving welfare is likely very small.

The challenge in applying this research to tax compliance is to think of a benefit that will get people to file, while ultimately extracting a tax from them. The rebate might provide some potential insight as to whether it might have induced more filers who ended up paying taxes, and standard statistical tests might be applied for this purpose.

**4**



**Harnessing Technology to Improve  
Tax Administration**

**De Silva**

**Wilson**

**Cico ♦ Olson**

**McCubbin**



# The Management of Corporate Tax Data in a Digital Age

*Kithsiri L. De Silva, New Zealand Inland Revenue*

It is apparent that, during the 21st century, the New Zealand tax administration and its corporate customers will become increasingly computerized and will rely on digital data to perform their business activities. It is thus an appropriate time to look back at the roots of modern taxation in order to understand challenges that the New Zealand Inland Revenue Department (IRD) may have to face in the future and how far computers could be used to enhance IRD’s effectiveness.

When income tax was introduced by William Pitt in the United Kingdom in 1799, a major concern was the lack of resources to administer the tax. Reasons adduced for the initial failure to collect anticipated tax included:

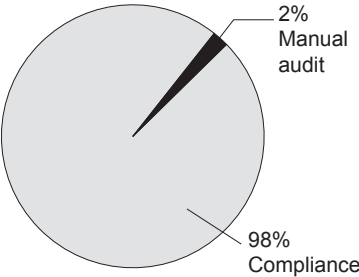
- Inability to individually check all general returns
- Lack of administrative machinery to check all prescribed forms where it was considered necessary to call for them
- Inability to verify the system allowing deductions making it susceptible to abuse
- Shortage of administrative staff to carry out the work.<sup>1</sup>

These criticisms have a familiar ring, as they are still valid today. They still remain core issues in modern tax administrations.

**Figure 1. Audit and compliance presented in IRD annual reports**

5-year average ratio of income assessed resulting from IRD audits to the total tax collected

	Total revenue	Assessed from audit	Ratio
2007	48,500,000,000	996,000,000	2.05%
2006	46,820,000,000	980,000,000	2.09%
2005	42,000,000,000	763,000,000	1.82%
2004	37,900,000,000	787,000,000	2.08%
2003	35,000,000,000	900,000,000	2.57%



<sup>1</sup> Sabine, B.E.V., *A Short History of Taxation* (1980), M.A., Institute of Taxation, London, p. 104.

During the last 5 years, the amount of income assessed annually by IRD as a result of audit activity has averaged around 2 percent of total taxes collected.<sup>2</sup> Critics of the tax administration could argue that this ratio is too low, considering the amount of resources available to the Commissioner. Conversely, it could be argued that the figure indicates that IRD is performing well, if the 2 percent in audit collections could drive the 98 percent in voluntary payments. But neither of these interpretations fully explains the significance of this ratio.

A third point of view could be based on the nature of the work done by IRD that is represented in this ratio. It may be useful to equate these percentages to the underlying tax base. It could be argued that 2 percent represents the tax base that has been examined and audited during a year, and the remaining 98 percent equates to the tax base that was not audited.

If we accept that staff of IRD at present are well-trained, highly skilled, motivated, and well-managed, we have to recognize that, in producing a 2-percent audit outcome, the available human resources have been fully utilized. It follows that there is very little unutilized capacity left to increase the audit percentage.

If we were to follow this line of logic, it will lead us to the conclusion that, to manually audit the remaining 98 percent, a tremendous escalation of human resources would be required. Such an increase may not be achievable or, even if achievable, it may not be cost-effective. The inescapable conclusion is that increasing human resources to audit the full tax base is not a viable option. Any further improvement in tax collections will have to be achieved by:

- Encouraging voluntary compliance, and
- Using computers more productively and creatively.

## **OECD view on compliance and computerization**

The OECD has emphasized both of these aspects. There is an increasing realization that taxpayers are the persons best suited to compute their own tax obligations—in a self-assessment environment. The recent IRD Audit Strategy Program focused on:<sup>3</sup>

- Streamlining and simplifying the tax processes
- Creating an environment which promotes compliance

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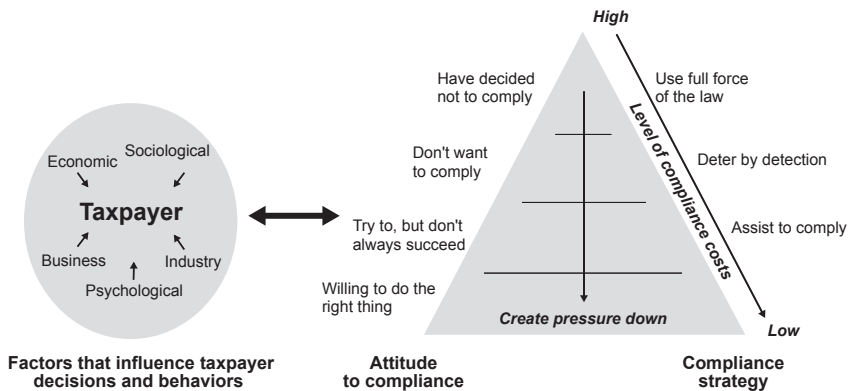
<sup>2</sup> Refer to IRD's Annual Reports at [www.ird.govt.nz](http://www.ird.govt.nz).

<sup>3</sup> Morris, Tony and Michele Lonsdale, "Translating the Compliance Model into Practical Reality," *2004 IRS Research Conference Bulletin*.

- Enhancing people’s capability within IRD
- Increasing the use of computers in the audit program.

In line with the OECD model, the compliance model adopted by IRD recognizes five broad “influencing factors” described by the acronym BISEP—Business; Industry; Sociological; Economic; Psychological. These factors are recognized as those that influence a customer’s attitude toward compliance. The model identifies four categories of taxpayer behavior and the corresponding responses IRD intends to make.

**Figure 2. OECD compliance model**



## OECD compliance model

However, this still begs the question as to how IRD would be able to outlay resources that are already fully committed. The suggested strategy is to work smarter using risk management processes. Risk management focuses on identifying and prioritizing risk. It is seen as the critical tool to be used to increase the efficiency of the audit process.

Yet, in practical terms, this process casts a heavy burden on IRD auditors who have to undertake the extra work as well. The risk management process follows the traditional process of analyzing yearend financial statements and relies on audits and voluntary disclosures to identify risks. The process as currently envisaged does not relieve the burden on existing human resources but in fact increases it. It creates additional work which requires additional human resources.

To find a solution to this conundrum, it is necessary to understand the makeup of the tax base that remains unaudited each year. The known tax

base consists of data submitted to the department, electronically or manually, which are used to issue notices of assessment to quantify the tax payable by a taxpayer.

Under self-assessment, while the preparation of an assessment is the responsibility of the taxpayer, IRD has a role to play in printing and issuing it. Once the tax has been determined, the FIRST system (IRD's computer system) tracks the progress of payments relating to those taxes.

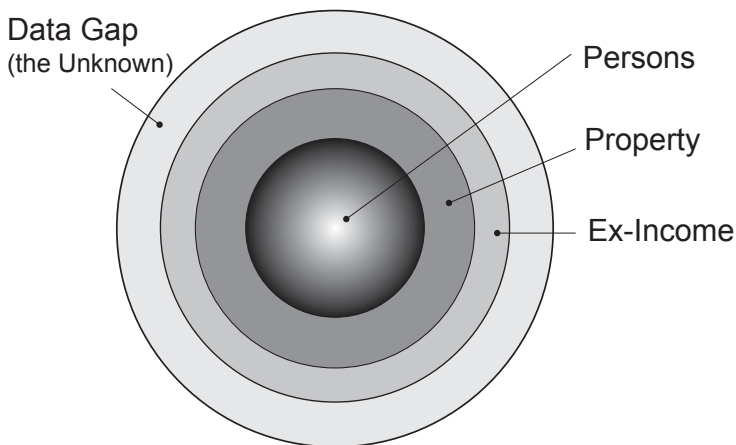
FIRST is essentially an operational tool. It has very little use as a resource for research. Over the last 10 years, IRD has developed a data warehouse program into which FIRST data are downloaded for tax research and investigation. This paper suggests a methodology to expand the use of that data.

The questions posed by the paper are whether:

- Computers could be programmed to audit tax returns of corporate taxpayers automatically.
- Key data from third party sources could be collected and analyzed in real time to verify corporate financial statements that are submitted after the end of the tax year.
- The risk management process can be carried out electronically to relieve the burden on human resources and enhance the work of IRD risk analysts who are responsible for audit case selection.

## What is the tax base?

**Figure 3. Data components of the tax base**





The tax base is the sum of all taxable transactions and the value of all property subject to tax within a tax jurisdiction.<sup>4</sup> The main components of the tax base consist of:

1. Persons,
2. Property, and
3. Expenditure/income transactions that are subject to tax.

Data in respect of these three components are recorded as they occur in databases. Since most corporate data are recorded, the corporate tax base is identifiable, measurable, and finite. It is identifiable since records exist that can be used to identify the different components. It is measurable since the nature and content of the items identified can be described and accounted for and numeric values assigned to them. It is finite since, in any given tax year, the items that matter are those that relate to the 365 or 366 days of that year.<sup>5</sup>

Another feature of the tax base is that it exists in real time. In a digital age, transactions would be recorded in databases as they occur. The implication is that the tax base is dynamic, and its components are constantly changing from moment to moment. It is a moving arrow, and the only way to capture it so far has been to apply Zeno's paradox and freeze it at a stationary point, such as the end date of a tax year in the form of financial

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<sup>4</sup> The taxable base would be the portion of the tax base that has been subjected to tax by the legislature. The taxed base would be the taxable base that has, in fact, been taxed.

<sup>5</sup> The tax gap arises from a data gap, i.e., a lack of information. The data gap is the difference between "recorded data" and "known data." "Recorded data" are the data that get recorded in public and private registers, databases, and similar collection points (data centers) in an economy. These data centers are created as a normal incidence of social, administrative, and commercial operations and exist independently of the taxpayer and the IRD/IRS, e.g., land and vehicle registers. There could be innumerable such data centers, but only those that are significant in terms of monetary or numeric value need to be considered. "Known data" are the data that have come to the attention of the IRD/IRS, for example, through tax returns, audits, information exchanges, etc. The data gap lies in between. "Recorded data" fall into 3 categories:

1. Persons
2. Property, and
3. Expenditure/income.

These three categories constitute the total tax base. Since data in respect of each of these categories get recorded somewhere, they can be accounted for. The tax base can be reconstructed if all data bases can be identified. When all (or the most significant) data bases are identified and brought together, a national fiscal database is created that replicates the total tax base. This is a gradual process, and identifying all the databases will take time. Auditors do not attempt to map the tax base. They approach it from financial accounts (the end product) which are at the other end of the data spectrum. Having identified the taxpayer or groups of taxpayers they wish to investigate, they search backwards to the databases through audits, for example, from financial statements to ledger accounts, to tax invoices, to Customs Office registers, etc. The data approach and the audit approach try to measure/estimate the tax gap from opposite directions. The two approaches are compatible and complement each other.

statements.<sup>6</sup> In future, there could be alternative methods to capture and use data from the taxable base.

**Figure 4. Data collection and filtering process**

Data View		Data Source
	<b>ZOOM OUT - MACRO VIEW</b>	
Full business environment	(1)	Third-party data (including property data)
Market and supplier base (tax invoices)	(2)	Transactional data—ex-income stream
Business files and records	(3)	Correspondence, business records, minutes, etc.
XBRL	(4)	Journal entries, ledgers, accounts
XBRL	(5)	Trial balances/ balance sheet P & L accounts
XBRL/Company tax return	(6)	Net profit and income tax adjustment account
Company tax return data point	(7)	Taxable income
	<b>ZOOM IN - MICRO VIEW</b>	

## Inverted triangle of the data filtering process

Each company generates a large volume of data during a tax year. Some of it is recorded electronically and some on paper. At the end of the year, this mass of data has to be encapsulated in a single taxable income figure to which a tax rate must be applied to compute the annual tax.

Prior to the electronic age, IRD had to await the arrival of a tax return to finalize the tax computation. In an electronic age, IRD need not depend on a tax return. Provided that legislative authority has been obtained, IRD

<sup>6</sup> An interesting recent development in New Zealand has been the concept of “unit valuation” introduced by the Taxation (Savings Investment and Miscellaneous Provisions) Act 2006. This concept uses daily valuation of equity portfolios of portfolio investment entities (PIE) as the basis for calculating income. As a result, it is not possible to compute taxable income of a PIE by preparing end-of-year financial statements. Notional income of the PIE has to be computed and allocated daily to its investors after the tax payable by each investor has been calculated. The tax paid by each taxpayer becomes a final tax. This makes it possible for the IRD to request the data to be downloaded in real time long before the end of the tax year. The endyear computation of accounting profit serves no purpose because the tax is not calculated by modifying the accounting profit. The tax is not based on an endyear net income or property value but a daily asset value.

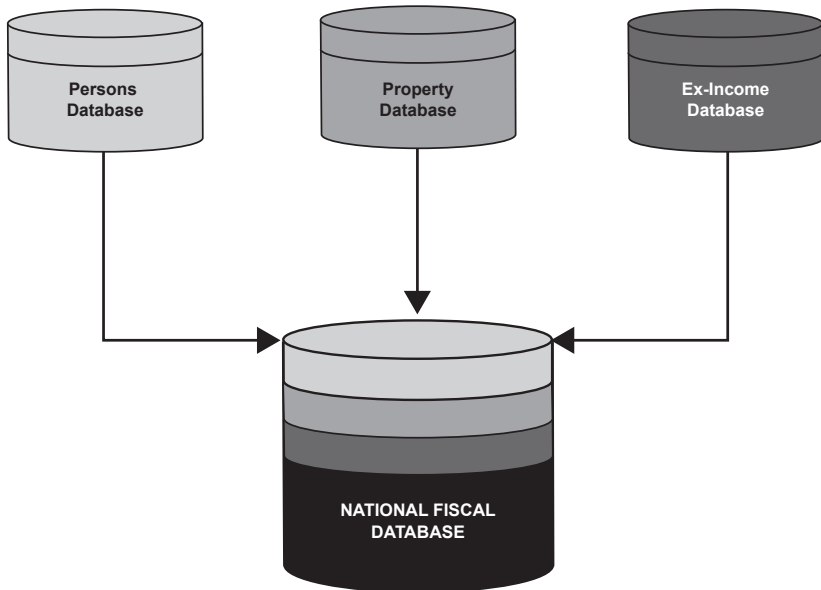
could access data at any stage of the data filtering process to compile its own estimate of income or tax of a selected taxpayer. The tax return need not be the focal point of an annual tax assessment and review program.

It is important to differentiate “the taxable base” and “the taxed base” from the tax base. Conceptually, the tax base would be larger than the taxable base, which is the base on which the Legislature has chosen to levy taxes. The taxable base would not include exemptions or exclusions, but the tax base would.

The taxed base is that portion of the taxable base on which taxes have, in fact, been levied. The data gap (and the resultant tax gap) lie between the taxable base and the taxed base. A large part of the activity of data administrators of the NFD [when it is set up] would focus on the closure of this gap. To do so, the NFD must be maintained on an ongoing basis. It should not be a mere depository of information but an actively worked database.

## The National Fiscal Database

**Figure 5. The National Fiscal Database**



Fiscal data can be collected from a variety of sources. Many of these sources are within government or semigovernment organizations, such as the

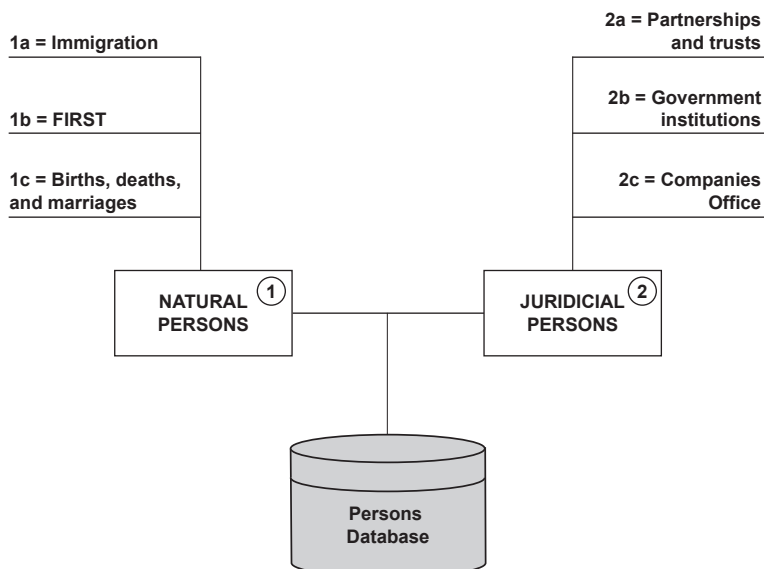
Department of Customs Land Information, City council rating registers, and IRD's own FIRST system.<sup>7</sup>

It is the contention of this paper that, by using data from these sources, databases can be created by IRD to hold information relating to the three main data components of the tax base, i.e., persons, property, and expenditure/income transactions (ex-income) in real time as transactions occur. When they are combined, they would create a virtual copy of the tax base to form a National Fiscal Database (NFD).<sup>8</sup>

An integrated and relational NFD will prove to be a powerful tool in the hands of IRD because it replicates the total tax base. Since its application could be extensive if it is adopted, it would have a significant impact on how IRD would operate in the future.<sup>9</sup>

## Person's database

**Figure 6. Persons database**



<sup>7</sup> FIRST is IRD's operational computer system.

<sup>8</sup> De Silva, Kithsiri L., "Botswana's New Corporate Tax Intelligence System," *Bulletin for International Fiscal Documentation*, IBFD, June 1999.

<sup>9</sup> The IRD may meet strong social and political resistance, especially if it is set up for aggressive investigative purposes, even though corporates would not be able to seek protection of the Privacy Act 1993.

An integral concept embedded in any income tax Act is the concept of a “person.” All other concepts are peripheral. Income tax is assessed on persons or is payable by persons. It is necessary therefore that IRD maintains an accurate and updated database of all persons who are liable to be assessed, as well as those who are assessed and pay tax.

Two different categories of persons can be identified: natural persons and juridical persons, such as companies and trusts. This paper is limited to analyzing corporate data. However, it still may be necessary to collect data on natural persons who are associated with juridical persons.

An important feature of the NFD would be that, while it would identify relationships between persons deemed to be associated in accordance with the provisions of the Tax Acts, it would also indicate links between persons who have commercial relationships with each other. Privacy issues are not addressed in this paper. It is envisaged that such issues may have to be addressed through legislation.

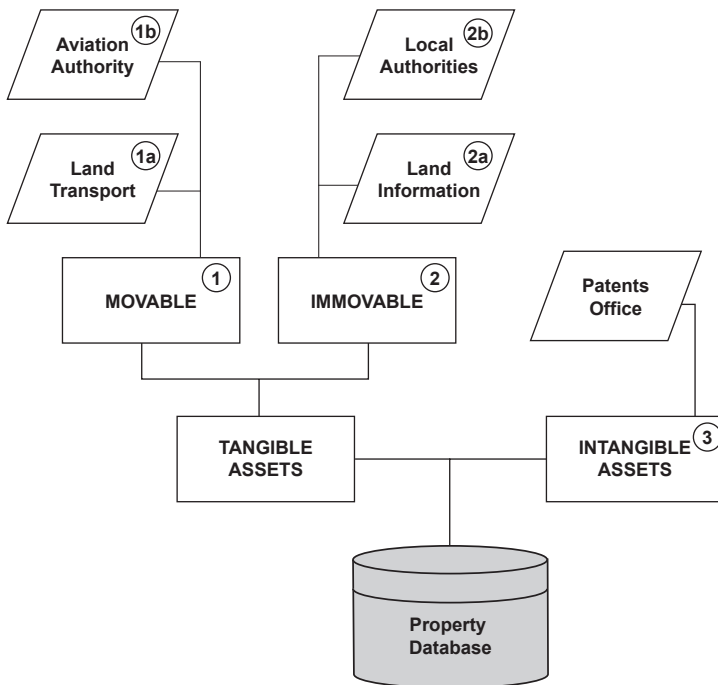
To populate the persons’ database, data can be collected from a variety of sources. Data in respect of natural persons can be obtained or verified from the Registrar of Births, Deaths and Marriages, the Department of Immigration, and IRD’s FIRST database. Data relating to juridical persons can be obtained from such sources as the Companies Office, Government Actuaries Office, FIRST, and other government and local government offices.

While a large volume of data can be obtained, judgement would have to be exercised to limit the data to instances where there is interaction between the person’s database and the other two databases. Data should be restricted to manageable proportions to prevent a data blowout. Persons who obtain IRD numbers would automatically be registered in the person’s database.

## **The property database**

The property database is the second component of the tax base. The asset registers of most company balance sheets contain lists of lands and buildings and other assets, such as vehicles they own. As such, the data in the property database need to be interlinked with and crossreferenced to corporate balance sheets.

There are two main categories of properties: tangible and intangible. The tangible properties can be further subdivided between movable and immovable properties. As in the case of the person’s database, there are many sources from which data can be gathered.

**Figure 7. Property database**

NOTE: The above figure is not comprehensive. It is an example of some of the sources from which data could be obtained.

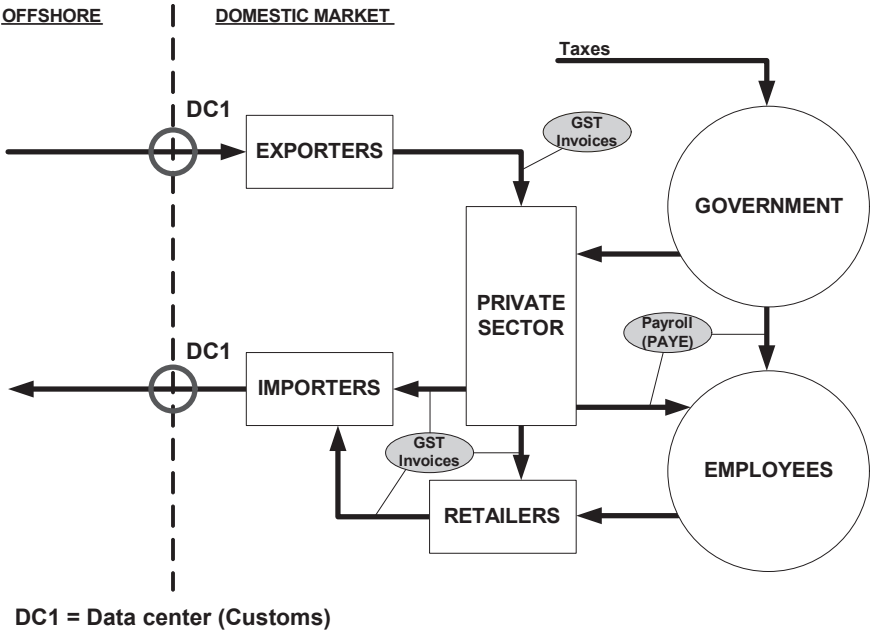
The problem that is frequently encountered with property data is that names or references that are found in corporate balance sheets or asset registers do not always match the title or unique numbers assigned to them in source documentation. If data are to be used for real time analysis, it is necessary to ensure that data in the balance sheet or asset registers match the source documents. The main advantage of such crossreferencing is that, when the ownership of assets changes in the source document, it is relatively easy to reflect that change in the asset registers. This is important when we attempt to create live income models of taxpayers that are accurate at a given point in time.

## Expenditure-income database

The expenditure and income (ex-income) database records business transactions. It is the most dynamic and fluid of all three databases. The ex-income database records the constant flow of expenditure and income. In accor-

dance with economic theory, income arises from capital or services. For purposes of monitoring data, it makes more sense to treat income as arising from expenditure. One person’s expenditure leads to another person’s income, thereby creating an ex-income audit trail.

Figure 8. Expenditure income (ex-income) database



When a US importer buys goods from a NZ exporter, a flow of income begins, which is recorded at the Customs Office, and flows from the NZ exporter to its suppliers who operate in NZ’s general economy. Government expenditure flows into the economy and adds to the volume of the ex-income flows, which circulate through retailers and importers to foreign suppliers at which point it exits the economy. What is significant is that the main flows of these data streams are recorded at entry and exit points at the Customs Office and, while they circulate through the economy, get recorded in Goods and Services Tax invoices.<sup>10</sup>

Commercial activities of companies produce streams of data that can be followed from their points of origin to the final end user at the end of the

<sup>10</sup> GST is a value added tax on all goods and services supplied in New Zealand. GST returns are sent to IRD on a monthly or two-monthly basis (six-monthly for small taxpayers).

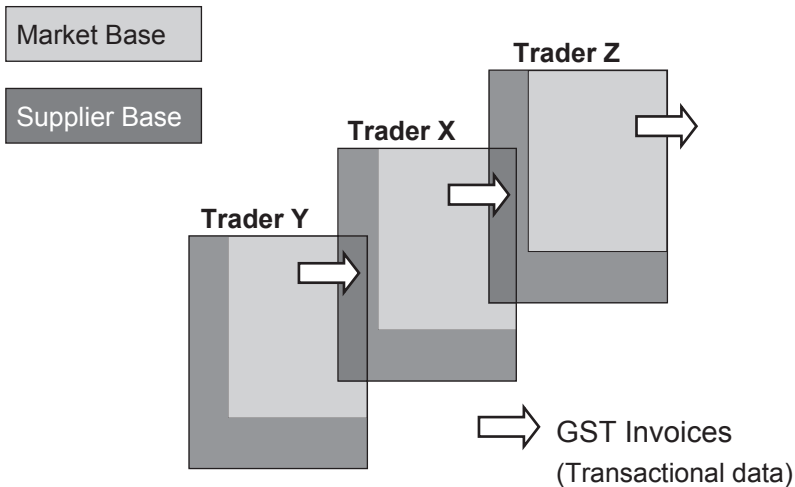
transactional chain. Each such stream would relate to a different category of economic activity, such as motor car imports and the sale of cars, exports of farm produce, and farming activity, etc. Data in respect of a point in these streams are often recorded in one or more data centers. A data center could be a government office, such as the Customs Office (at the point of entry into and exit from the country) or a large manufacturer, distributor, or retailer.

Banks are important data centers. They are required to submit information on taxes withheld on interest payments. Recently, the U.S. Treasury Department has proposed that brokers should provide cost basis information to taxpayers and the IRS, as well as require merchant banks that process credit and debit card payments to report gross reimbursement made to each merchant each year to the IRS. Brokers and payment card processors are already compiling these data in the normal course of business.<sup>11</sup>

In New Zealand, data recorded in tax invoices issued by taxpayers are summarized quarterly in GST returns and submitted to IRD during the tax year. It would be possible for IRD to request these data to populate databases for each ex-income stream. By integrating the different activity based ex-income databases in the NFD, a “real time virtual” picture of business operations can be constructed.

## Taxpayer as a data reservoir

**Figure 9. Taxpayer Network**



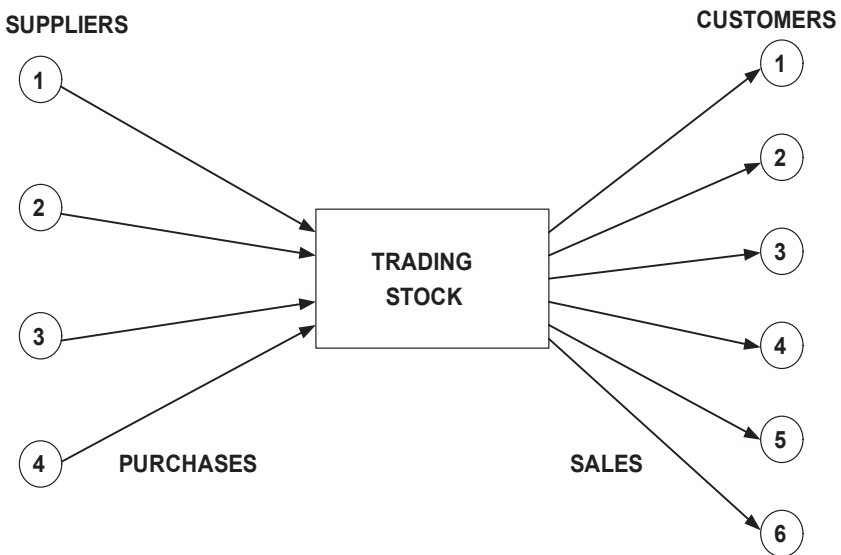
<sup>11</sup> Comments by Janet McCubbin of AARP Public Policy Institute at the 2008 IRS Research Conference.



The data stream approach emphasizes interconnections between businesses. No business is an island. It is connected to the main stream of activities of other businesses in its sector. As businesses have multiple suppliers and customers, a business can be viewed as a drainage basin into which supplies flow in through purchases and move out through sales. The market base of one business constitutes the supply base of the other.

Since most large and medium-sized companies record or would be recording their transactions electronically, it would be possible for IRD to gain access to these data on a real time basis. By tracking these relationships, IRD would be able to monitor the activities of various networks that cover an entire sector of economic activity. The economic performance of a business may depend, among other factors, on the health of suppliers who are upstream and customers who operate downstream. By building real time models of taxpayers and their trading partner networks, IRD would be able to broadly predict the endyear financial performance of each taxpayer.

**Figure 10. Trading network of a taxpayer**



### **Taxpayer modeling (use of ratios and other criteria)**

When data from the three databases are integrated into one national fiscal database, it would be possible to program an IRD computer to create income models of corporate taxpayers by using ratios that are unique to each company. For example, the annual income of a rental company owning com-

mercial property could be estimated ahead of the end-of-year tax return if the net lettable floor area, the market rent of the floor area, and the duration of tenancy leases are known. The forecast could be adjusted during the year if the NFD records material changes from the basic criteria that were used at the commencement of the year to create the model.

Similar models can be created for other sectors as well. For example, once the ex-income stream of a retailing company has been identified and the supply and market bases are monitored, it would be possible to estimate the income of that company on a continuous basis or at any give point in time using gross profit or net profit ratios. Similarly, the income of a trucking company could be estimated using vehicle capacity and fuel usage as indicators.

As a part of its “Doing Business project,” the World Bank and Price-WaterhouseCoopers have combined to produce a case study of a company that has a standardized business with a set of financial statements prepared by making various assumptions regarding its transactions and activities throughout a typical year.<sup>12</sup> Such studies could help to provide a basis on which taxpayer models are constructed.

On May 14, 2008, the U.S. Securities and Exchange Commission voted unanimously to formally propose using XBRL (eXtensible Business Reporting Language) technology to get important information to investors faster, more reliably, and at lower cost. The proposed rule would require all U.S. companies to provide financial information using interactive data beginning next year for the largest companies, and within 3 years for all public companies.

XBRL offers near real-time access to financial reports, in many cases within minutes of public companies filing them with the SEC. With XBRL, investors can create their own customized reports, automatically generating financial ratios, graphs, and charts depicting important information from financial statements. Information including earnings, expenses, cash flows, assets, and liabilities can be analyzed and compared across competing public companies.<sup>13</sup>

NZ IRD currently has a project addressing use of XBRL. It should be noted that the E-Government strategy of NZ is intended to enable people to use digital technology to find and use New Zealand government information and services.<sup>14</sup> The stated vision of E-Government is to enable “New

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<sup>12</sup> Paying Taxes 2008 ([www.doingbusiness.org](http://www.doingbusiness.org)).

<sup>13</sup> Media release, May 14, 2008, by U.S. Securities and Exchange Commission.

<sup>14</sup> <http://www.e.govt.nz/about-egovt/strategy>.

Zealanders...to gain access to government information and services..., using the Internet, telephones, and other technologies as they emerge.”

IRD is a key player in this program. As E-government gains momentum, the interaction between IRD and its customers will be largely electronic. In such an environment, the NFD would be an indispensable tool. The IRD would be able to provide its customers with higher quality, cost-effective services and build better relationships with its customers. The NFD could be used by IRD to provide transparency and thereby assist in building trust and faith in the integrity of the tax system.

Once data in the NFD include data accessed by using XBRL, it would be possible to create models of companies during any time in the year. These models could be compared with end-of-year statements that accompany company income tax returns.

## **Why are real time records important?**

Currently, IRD awaits the receipt of a tax return before it commences an investigation. There is a real risk of loss of tax due to the operation of statutory time bars and the exigencies of the audit and investigation process. In accordance with section 108 of the Tax Administration Act 1994, the Commissioner may not generally amend a taxpayer's assessment after the lapse of 4 years after the receipt of the tax return by the Department. Under normal circumstances, risk evaluation would commence on the current return only 15 months after the accounting year of the taxpayer had commenced.

Given that the dispute resolution process provides a very tight time frame within which to finalize a dispute, some initial years of the 4 open years may get statute-barred by the time amended assessments are prepared to capture back taxes. The process involved in identifying risks and gathering evidence is time-consuming. If IRD were to use historical records, such as previous years' financial statements, to prepare virtual models of the taxpayer and compare the results with "real time" records of transactions as they are captured by the NFD in the current year, then a significant portion of "risk" evaluation work could be completed before the tax return is received. This would prevent the loss of past year taxes. The deficiencies identified in the current year would enable IRD to capture taxes from the nontime-barred years in time.

## **How much data should the NFD hold?**

The NFD attempts to replicate the tax base. It is a simple map of the entire known tax base using only data required to identify the components and establish links between them. The net is thus spread as wide as possible to capture all data relating to the tax base. It is evident that all information in respect of the tax base cannot and need not be captured by NFD. The purpose of the NFD is to:

1. Identify significant and relevant data in each component of the tax base, and
2. Establish relevant relationships between the data.

A simple generic data structure that captures only essential details from each relevant third party database as shown in Table 1 would suffice to build the NFD. The success of the NFD would be determined by the extensiveness of its application rather than the depth of information it holds in respect of any entity or thing.

The goal of the NFD is to cover as far as possible the entire extent of the tax base. The NFD should be viewed as a compliance tool primarily used to scope the total tax base and identify simple data relationships that have tax consequences. The NFD should cover a wide spectrum of data that could be related meaningfully. A further aim would be to program the NFD to carry out simple audit checks of the entire tax base automatically.

Data captured from primary databases should be organized in a manner that would make it possible to create real time duplicates of selected ledger accounts of the corporate entities. It would be necessary to identify key accounts in the financial statements of each company that are indicators of the general performance of the company. Depending on the nature of the business, these accounts could include such accounts as sales, purchases, payroll, and fixed asset accounts.

The generic fields in each database should be limited to a minimum to correspond to fields in the corresponding ledger accounts. The aim of it would be to prepopulate the key NFD ledger accounts that act as indicators. The NFD should be able to use raw data from primary sources to prepare “raw” accounts (“correct” within broad parameters) that are used by the computer to indicate possible yearend risks. Investigators could then evaluate and prioritize these risks in order to open meaningful dialogue with the taxpayer well ahead of the return (if communication is begun early, the chances of yearend disputes can be minimized). The taxpayer can be assisted to get the tax correct the first time. Or, if that approach fails, IRD should be in a position to commence investigations as soon as a return is received.

## **Is it difficult to build an NFD?**

The NFD can be as simple or as complex as needed. For example, the FIRST system currently has data on all NZ taxpayers both resident and non-resident. This would form the core database of NZ NFD. Using the simple structure outlined earlier, databases such as land, motor vehicles, car imports, exports of wine and meat, bank and credit card transactions, share transactions, etc. can be added on until all third party databases have been brought in. Eventually, most of the NZ tax base would be covered by the NFD.

In planning the overall structure of the NFD, it would be important to consider its ultimate objectives and what uses will be made of its data. The way that data could be accessed, recorded, and manipulated would depend on how the NFD is initially structured. Bearing in mind that the NFD can be used to administer both Income tax and Goods and Services tax (GST) and assist investigations and compliance activities, the initial format would have to be carefully considered to permit multiple uses of its data.

## **Can IRD access real time records?**

Databases such as those of Customs, the Companies Office, NZ Land Information, and Land Transport record transactions in real time. If legislative changes permitting information sharing were enacted, it would be possible to transfer to the IRD information in real time on a selective basis. When XBRL is accepted as a standard for data recording in NZ, the real time data sharing could become a reality.

Real time access can also be sought by IRD by entering into data sharing agreements with taxpayers. Alex Raskolnikov in a paper presented at this conference suggests that taxpayers who are compliant should be treated in a different manner from those who are not.<sup>15</sup> A test of compliance could be the readiness of taxpayers to enter into real time data sharing arrangements.

One goal of the NFD is to make it possible for IRD computers to automatically scope the tax database and identify risks before the accounting year ends. The aim of such an exercise would be to engage in dialogue with the customer early enough to minimize postassessment disputes. Data sharing agreements if carefully planned could benefit both parties in the manner that an advance pricing agreement (APA) helps to reduce the incidence of transfer pricing audits.

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<sup>15</sup> Raskolnikov, Alex, "Beyond Deterrence: Targeting Tax Enforcement with a Penalty Default," 2008 IRS Research Conference. Not published in these proceedings.

The compliance triangle of IRD (see Figure 2) classifies taxpayers into four categories:

1. Have decided not to comply
2. Don't want to comply
3. Try to, but don't always succeed
4. Willing to do the right thing.

Using the NFD, it would be possible (to a large extent) to identify taxpayers who fall into these categories. The third and fourth categories may be ideal candidates for data sharing agreements. They could be encouraged to enter into data sharing arrangements on the understanding that they would be excluded from end-of-year investigations.

## NFD and enterprise data structures

In their paper, "Electronic tax return filing: Enterprise data structures and tax compliance risk assessment," Charles Boynton, Petro Lisowsky, and William B. Trautman have described the concept of enterprise data structures.<sup>16</sup> By using open-source XML and object-oriented programming technologies, it has become possible to "combine tax return information with financial statement information and information on related entities into an "enterprise data structure" which captures (and allows one to access programmatically) the organizational structure of the enterprise."<sup>17</sup> This is an exciting development meant to investigate complex worldwide activities of multinational enterprises.

The NFD cannot be used for such complex and intensive investigations but it could assist. The NFD can scope and identify entities that are not only related to each other through common ownership but also as a result of trading transactions. It can broadly identify groups of enterprises that may require to be contacted if they fall into the first two categories of the compliance triangle. NFD would serve a useful purpose in being able to highlight the existence of large groups of enterprises with common links that may need further investigation for which "computer objects" can be prepared.

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<sup>16</sup> I had the opportunity to read a draft of their paper and discuss its content with William Trautman.

<sup>17</sup> Boynton, Charles, Petro Lisowsky, and William B. Trautman, "Electronic Tax Return Filing: Enterprise Data Structures and Tax Compliance Risk Assessment," 2008 IRS Research Conference.

## Transparency and trust

The purpose of the NFD should not be to confront corporate taxpayers at the end of a year on any divergence that may have been noticed between the computed real time profit and yearend result declared by the company. It would be more advantageous if real time modelling results are made available to companies during the course of the year to allow them to make early adjustments to minimize or eliminate the possibility of postassessment disputes.

There could be strong resistance to the NFD if it is used aggressively as an investigative tool. Conversely, if access is granted to companies to view data held by IRD that have been used in the modelling process, as a quid pro quo gesture for access to company data through the use of XBRL, it should result in a trusting relationship being established between IRD and its customers. Transparency on the part of IRD and trust by taxpayers could reduce the cost of tax administration. It would also make the Department more productive and cost-effective.

In 1799, in the UK, a critic described field surveyors (modern day investigators) as:

“...persons whose duty it is to go about and see the number of servants, horses, dogs, etc. that each man has to make a return; in this, it is their interest, as well as their duty, to be keen and active. These are the persons that are to come abroad to survey and inspect men’s properties and to get at the truth by getting at the secrets of man’s affairs. How is this to be done? I know of no other way than by cajoling, corrupting, and bribing the clerks and domestics of the respective houses they wish to examine, actions for which a man ought to be hooted out of society.”<sup>18</sup>

Some 200 years later, the NZ IRD Commissioner, commenting on the publication of the book, “*Be Very Afraid*,” written by an aggrieved taxpayer, stated that:

“No employee of any kind of business, including the professional, competent, and hardworking staff of Inland Revenue, should have to put up with the type of nasty and vicious personal attacks which have occurred in this book.”<sup>19, 20</sup>

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<sup>18</sup> See footnote 1.

<sup>19</sup> Henderson, Dave, *Be Very Afraid* (1999), Alister Taylor Press.

<sup>20</sup> *Be Very Afraid*, Afterword, Commissioner’s response, p. 222.

Such comments illustrate the underlying tension that has existed and still exists between taxpayers and IRD. There are fears on either side. IRD is concerned that the tax base will be seriously eroded by taxpayers who participate in tax evasion or tax avoidance arrangements. It is concerned that, unless such taxpayers are fully investigated and dealt with, the integrity of the tax system would be damaged.

On the other hand, some taxpayers feel insecure and are afraid of the investigative techniques employed by IRD and the secrecy that shrouds the process. This paper takes the view that, after 200 years of such acrimony, it is time for IRD to attempt to bridge the credibility gap. It is argued that a comprehensive, well-researched, and well-documented NFD would provide IRD with sufficient confidence to be transparent and work more closely with taxpayers.

The end result of the modelling process would be that IRD would in fact be creating its copy of selected ledger accounts of taxpayers. Since these data are being shared with the taxpayer, it would provide certainty to companies that their accounts would not be challenged by IRD at the end of the year. In turn, if the NFD prepared by IRD is comprehensive and accurate, the Commissioner could be confident that there would be no further data that the company could have hidden from IRD.

## **The OECD approach**

The OECD has evaluated the use of “prepopulated” tax returns against three criteria which could apply equally to the NFD and its use by Inland Revenue to model taxpayers.<sup>21</sup> While these observations are mostly relevant to natural persons and small businesses, they could equally apply to corporate entities.

The criteria are:

- Burden on taxpayers
- Compliance levels
- Efficiency.

The use of prepopulated tax returns is meant to reduce the compliance burden of a taxpayer. This burden is not always capable of being measured in monetary terms as it includes personal time in storing and locating docu-

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<sup>21</sup> “Using Third-Party Information Reports To Assist Taxpayers To Meet Their Return Filing Obligations” (March 2006), OECD-Forum on Tax Administration.



ments and preparing returns. It might also include the cost of engaging professionals and time involved in correcting errors.

Advantages of using prepopulated returns that have a beneficial impact on taxpayer compliance include:<sup>22</sup>

- The return could include information that the taxpayer might not have otherwise included.
- It is a reminder that the tax returns have to be filed.
- It reduces the followup action that may be necessary if the taxpayer does not send a return on time.
- It could reduce the postassessment verification time.
- It would consequently reduce administrative costs.

Assisting taxpayers by providing information to complete their tax returns could have a positive impact on the taxpayer's perception of IRD. Accordingly, IRD is currently providing a summary of earnings to assist employees to complete their tax returns. Some taxpayers may even appreciate the personalized services provided to them. This includes IRD being open and upfront with them and not holding on to any nasty end-of-year surprises.

The success of such a system depends on many factors that include:<sup>23</sup>

- The size of the taxpayer population
- Use of prepopulated returns by taxpayers
- The rate of adjustments required to such returns and assessments
- The level of automation and self-assessment
- The legislation requiring third parties to report information
- The ability of the Department to handle the large volume of information flowing in
- The requirement of third parties to correctly identify taxpayers using their personal identification numbers (PINs)

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<sup>22</sup> A disadvantage in prepopulating tax returns is that some taxpayers may not volunteer income if they know that Revenue is not aware of it. Such a risk can never be eliminated. However, by setting up a national fiscal database, creating taxpayer models, and negotiating datasharing arrangements with selected corporate taxpayers, this risk could be contained. Nondisclosure of income is tax evasion. It is anticipated that most corporate entities would rather comply than evade.

<sup>23</sup> See footnote 21.

- Timely reporting of the information
- Whether taxpayers are given an opportunity to review information collected by the Department well before the return submission date.

The goal of the NFD would be to satisfy all these requirements and fit within the observations made by the OECD.

## **Conclusion**

This paper posed three questions at the outset, whether:

- Computers could be programmed to audit tax returns of corporate taxpayers automatically.
- Key data from third-party sources could be collected and analyzed in real time to verify corporate financial statements that are submitted after the end of the tax year.
- The risk management process can be carried out electronically to relieve the burden on human resources and enhance the work of IRD risk analysts who are responsible for audit case selection.

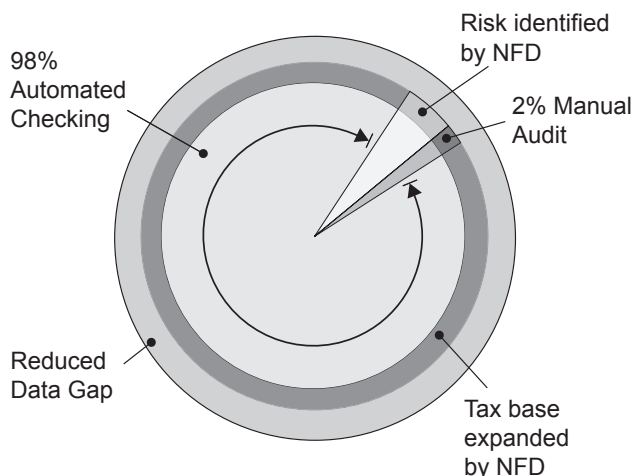
With the establishment of the NFD, these questions could be answered in the affirmative. The entire tax base could be audited by computers creating individual models of each taxpayer. By using predefined ratios and other criteria, computers would be able to raise early warning signals to alert IRD of significant divergences occurring from the predicted model. If the amount of divergence is material enough, early action could be instituted by IRD to notify its customers, enabling them to reconcile or explain the cause or causes for apparent divergences.

However, the creation of the NFD will not completely eradicate the tax gap or the data gap. By expanding the data available to IRD from each of the data bases, the NFD would be able to reduce the data gap. Reducing the data gap does not mean it would minimize the tax gap arising from tax avoidance arrangements. There will always be taxpayers who fall into the first two categories of the OECD compliance triangle.

The best that the NFD could hope to achieve would be a drastic reduction of tax evasion since the NFD can verify the accuracy of primary data. It can help but cannot counteract tax avoidance arrangements, which are subtle. There is always a need for manual audit, and this could be under-

taken on risks identified by the NFD or on information received by IRD of tax avoidance arrangements.

**Figure 11. Future basis for annual tax collections**



These risks may cover an area of the tax base that is greater than 2 percent that is manually audited each year. Yet because less human resources need to be used in risk identification as a result of the NFD, a larger number of investigators would be released from risk identification work and would be free to handle the increased number of audits.

It is important to keep in mind that, in the near future, most, if not all, transactions of Corporates and Government organizations would be carried out and recorded electronically. This would enable IRD to access, use, manipulate, and store data very differently from the way it has done in the past. Mobility and fluidity of data have already released the work environment from geographical constraints. They are also dissolving the silo approach to data classification and storage. The boundary between tax compliance and tax administration is becoming less distinguishable. The “them and us” approach is beginning to disappear. The 21st century will thus produce new challenges which may need to be handled with greater transparency and trust between IRD and its customers.<sup>24</sup>

<sup>24</sup> I acknowledge the contributions made to this paper by Stewart Donaldson, Manager, Risk & Intelligence Unit, NZ IRD, Patrick English, Senior Investigator, Assurance, NZ IRD and Anthony Fullman, Business Analyst, National Office, NZ IRD. I would like to thank Mark Ketchell, Analyst, Risk & Intelligence Unit, IRD NZ, for patiently converting my ideas into easily understandable figures.

**Table 1. An example of a generic data structure**

Data field	Explanation	Example
Source Reference code	Source of data	Land transport NZ
Date of transaction	Details of transactions	01/01/2008
Nature of transaction	Details of transactions	Sale/purchase/gift/other
Description of property or service	Details of property or service	motor vehicle
Unique identifier of property or service	Details of property or service	ZB 3946
Transferor	Details of parties	Name
Unique identifier of transferor	Details of parties	company number
IRD number of transferor	Details of parties	77-777-777
Transferee	Details of parties	Name
Unique identifier of transferee	Details of parties	company number
IRD number of transferee	Details of parties	66-666-666
Value of transaction	Details of transaction values	
Currency type		US \$/Aus \$/British £
Amount		50,000.00

# Building a Better Filter: Using IRS Allowable Expense Standards To Protect Lower-Income Social Security Recipients from the Federal Payment Levy Program

*Jeff Wilson, Internal Revenue Service*

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**T**he IRS is authorized to issue continuous levies of up to 15 percent of a taxpayer's payments received from the Federal Government via an electronic process.<sup>1</sup> This authorization forms the basis for the IRS's Federal Payment Levy Program (FPLP), which systemically matches IRS delinquent accounts to the records of the Financial Management Service (FMS).<sup>2</sup> These matches allow the IRS to locate Federal payment recipients who have delinquent tax liabilities. Once Federal payment recipients have been identified, the IRS sends a notice to the taxpayer explaining the outstanding liability, including the taxpayer's right to appeal the collection of the liability. The IRS then sends an additional notice to taxpayers before levying Social Security Administration (SSA) benefits.<sup>3</sup>

The vast majority of FPLP levy payments are received from SSA benefits.<sup>4</sup> In January 2002, the IRS implemented a filter which prevented low-income taxpayers from being subjected to a levy of their SSA benefits. This filter was based on the total positive income (TPI) reported on the taxpayer's last filed income tax return.<sup>5</sup>

Subsequently, in March 2003, the General Accounting Office (GAO) issued a report on the IRS's FPLP program. Among other findings, the GAO report determined that the TPI filter was often based on outdated information and resulted in a disparate treatment of taxpayers. Moreover, the GAO report suggested that even taxpayers with low incomes might have other assets which could be utilized to satisfy their tax obligations.<sup>6</sup>

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<sup>1</sup> Taxpayer Relief Act of 1997 (TRA 97).

<sup>2</sup> The FMS is the Department of the Treasury agency that processes payments for various Federal agencies.

<sup>3</sup> General Accounting Office, GAO 03-356, *Tax Administration, Federal Payment Levy Payment Program Measures, Performance, and Equity Can Be Improved* 5 (March 6, 2003).

<sup>4</sup> IRS, Wage and Investment Division spreadsheet, FPLP Monthly Counts FY 2007. [1,740,728 (total number of FPLP SSA levy payments received in FY 2007) / 2,014,142 (total number of FPLP levy payments received in FY 2007) = 86.4 percent (86 percent)].

<sup>5</sup> General Accounting Office, GAO 03-356, *Tax Administration, Federal Payment Levy Payment Program Measures, Performance, and Equity Can Be Improved* 11 (March 6, 2003).

<sup>6</sup> Ibid 13-15.

As a result, the IRS agreed to phase out the TPI filter, and, in January 2005, the filter was completely removed. The complete removal of this filter coincided with a dramatic increase in Taxpayer Advocate Service (TAS) FPLP cases. TAS FPLP cases increased by over 200 percent from Fiscal Year (FY) 2004 to 2005, going from about 500 cases to over 1,700 cases. TAS FPLP cases continued to increase another 143 percent from FY 2005 to FY 2006, with the total case count rising to over 4,000. While FY 2007 saw a slight decrease in TAS FPLP cases, the FY 2007 level is still more than 500-percent higher than in FY 2004.<sup>7</sup>

As a result of the increasing TAS FPLP inventory and because of the significant hardship FPLP levies may cause SSA recipients, the NTA recommended that the IRS pursue the development of a new FPLP filter, which better protects low-income taxpayers from undue hardship, without exempting taxpayers with the wherewithal to satisfy their tax obligations. During FY 2007, IRS Wage and Investment (W&I) Compliance agreed to begin a joint project with TAS Research to explore the development of a more effective filter, which would protect certain SSA recipients from being unduly burdened from an FPLP levy, but which would not exempt taxpayers able to afford the levy payment.

Initial analyses by the IRS showed that, as indicated by the GAO report, most FPLP taxpayers had not filed a recent income tax return, suggesting that the last filed income tax return may not be sufficient for determining which taxpayers can and cannot endure the FPLP levy without hardship.<sup>8</sup> Preliminary models to predict if hardship would be caused by an FPLP levy were developed. The IRS W&I Compliance model more accurately identified nonhardship cases, while the TAS model more accurately identified hardship cases.

However, the evaluation of both the IRS W&I Compliance and TAS models was based on a consideration of all continuous FPLP cases as being nonhardship. An analysis of the sample data showed that more than half of the cases disposed of as hardship by IRS W&I Compliance had previously been in a continuous FPLP levy status.<sup>9</sup> The initial analyses also suggested that the TAS method of including only dispositions where the IRS secured financial information resulted in a biased filter. For these reasons, the IRS W&I Compliance and TAS agreed to begin a second phase of research.

The second phase of research also incorporated payer data reported to the IRS in addition to tax return items, allowing for a reasonable estimate

<sup>7</sup> Taxpayer Advocate Service, Business Performance Management System (September 2004, 2005, 2006, and 2007).

<sup>8</sup> Only 27 percent of the taxpayers receiving an FPLP levy during the first 6 months of FY 2007 had filed a 2005 individual income tax return (most recent tax year available on IRS Compliance Data Warehouse).

<sup>9</sup> E-mail from W&I Research analyst dated May 22, 2007.

of taxpayers' incomes even if a recent tax return had not been filed. The IRS chose to use these additional taxpayer income data to see if a better mathematical model could be developed, but continued to classify all FPLP continuous levy cases as nonhardship cases. TAS chose to use the additional taxpayer income information to pursue the use of IRS allowable expenses to determine whether a taxpayer can afford an FPLP levy without experiencing significant hardship. The methodology, findings, and conclusions outlined in this report will focus on the viability of using IRS allowable expense standards to filter Social Security recipients from being subjected to an FPLP levy, when the levy would likely create a financial hardship.

## Background

In FY 2007, over two million Federal Payment Levy Program (FPLP) payments were received from levies issued by the IRS. These FPLP levies garnered over \$345 million of Federal payments to taxpayers. By far, the most common Federal source of payments from the FPLP program is Social Security Administration (SSA) benefits. In fact, more than 85 percent of the FPLP payments received in FY 2007 were from Social Security benefits.<sup>10</sup>

FPLP levies are issued by the IRS systemically, without reviewing the facts of the cases. These levies on Social Security payments may result in significant harm to taxpayers, since their Social Security benefits are often their sole or majority source of income. Social Security provides at least half of the total income for 65 percent of beneficiaries aged 65 or over, and comprises 90 percent or more of total income for more than 34 percent of this population.<sup>11</sup> As of August 2007, Social Security recipients received an average benefit of \$962.70 per month.<sup>12</sup> An FPLP levy would reduce the amount to \$818.29. These Social Security facts illustrate how devastating an FPLP levy may be to many Social Security recipients.

Because of concerns about the effect of FPLP on low-income taxpayers, the National Taxpayer Advocate (NTA) persuaded the IRS to institute a filter to protect low-income Social Security recipients from FPLP levies. In 2002, the IRS implemented such a filter based on the taxpayer's total

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<sup>10</sup> IRS, Wage and Investment Division spreadsheet, FPLP Monthly Counts FY 2007.  $[1,740,728 \text{ (total number of FPLP SSA levy payments received in FY 2007)} / 2,014,142 \text{ (total number of FPLP levy payments received in FY 2007)} = 86.4 \text{ percent (86 percent)}]$ .

<sup>11</sup> Social Security Administration, *Fast Facts and Figures About Social Security* (September 2007).

<sup>12</sup> Social Security Administration, Office of Policy, Research, Evaluation, and Statistics, *Monthly Statistical Snapshot*, Table 2, Social Security Benefits (August 2007).  $[\$962.70 \times 0.15 = \$144.41 \text{ and } \$962.70 - \$144.41 = \$818.29]$ .

positive income (TPI) reported on his or her most recently filed income tax return.<sup>13</sup>

A report issued by the General Accounting Office (GAO) in 2003 raised questions about the effectiveness and fairness of this filter. The GAO report cited equal payment rates for taxpayers at or below the TPI threshold and taxpayers above the TPI threshold. The GAO report also noted that some taxpayers filtered out of the FPLP had other assets, such as real estate which might have been used to pay the tax obligation. Furthermore, the GAO report noted that many taxpayers filtered out of the FPLP had not filed a recent income tax return and that payer documents submitted to the IRS showed income higher than on the last filed return.<sup>14</sup>

In response to the GAO report, the IRS began to phase out the TPI filter and ultimately eliminated the filter in 2005. TAS saw a significant increase in its FPLP caseload corresponding to the phaseout and elimination of the FPLP filter. From Fiscal Year (FY) 2004 to FY 2006, Taxpayer Advocate Service (TAS) FPLP cases rose from about 500 to over 4,000.<sup>15</sup> Accordingly, the NTA continued to highlight the problems of FPLP in her Annual Reports to Congress. The IRS agreed to reexamine the possibility of developing a new FPLP filter for SSA recipients. The IRS W&I Compliance and TAS began to work on the development of a new filter during 2007.

The IRS W&I Compliance and TAS worked together to compile FPLP data to design and test new FPLP filters for SSA recipients. These data included FPLP data, tax return data, and other data reported to IRS from third parties regarding taxpayer income. The IRS W&I Compliance pursued the use of data mining techniques to develop a filter to classify FPLP SSA recipients into “can pay” and “cannot pay” categories. TAS pursued the application of IRS allowable expense standards to classify SSA recipients subject to an FPLP levy into “can pay” and “cannot pay” categories.

This report outlines the results of using IRS allowable expense standards to determine the ability of an SSA recipient to afford an FPLP levy without enduring financial hardship. The results of the allowable expense classification are compared to the IRS disposition of the case to examine the effectiveness of using allowable expenses to classify potential SSA FPLP levy recipients into “can pay” and “cannot pay” categories.<sup>16</sup>

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<sup>13</sup> General Accounting Office, GAO 03-356, *Tax Administration, Federal Payment Levy Payment Program Measures, Performance and Equity Can Be Improved* 11 (March 6, 2003).

<sup>14</sup> Ibid 13-15.

<sup>15</sup> Taxpayer Advocate Service, Business Performance Management System (September 2004, 2005, and 2006).

<sup>16</sup> The objective of the analysis is to explore whether the filter would inappropriately exclude from levy a significant number of taxpayers who actually paid or entered into an agreement to pay, resulting in an unjustified potential revenue loss to the government. Hardship cases are excluded from the analysis, because the revenue loss is justified due to the financial hardship the taxpayer would experience if subjected to levy.



## Methodology

IRS Filing and Payment Compliance provided data for all taxpayer delinquent account modules subjected to an FPLP levy during the first 6 months of FY 2007. Among other items, these data contained information on the taxpayer identification number, type of tax, taxable period, delinquency balance, and type of IRS disposition of any resolved module. Tax return line item information for this sample of FPLP taxpayers was also extracted from the Individual Returns Transaction File (IRTF), and third-party income information was extracted from the Individual Returns Master File (IRMF).

TAS Research used IRTF and IRMF data to construct an estimate of taxpayer income and developed an estimate of the amount of expenses that should be allowed by the IRS based on its allowable expense standards. Although the sample FPLP data were from FY 2007, the IRS 2006 allowable expense standards were in effect throughout this period and were thus used for this analysis. The 2006 IRS allowable expense standards contained guidelines for National Standard items, such as food and clothing, transportation costs, and housing and utility expenses. The following tables describe these 2006 standards:

**Table 1. National Standards for Gross Monthly Income**

	Gross Monthly Income							
	Less than \$833	\$833 to \$1,249	\$1,250 to \$1,666	\$1,667 to \$2,499	\$2,500 to \$3,333	\$3,334 to \$4,166	\$4,167 to \$5,833	\$5,834 and over
One Person Total	\$367	\$409	\$461	\$498	\$556	\$621	\$703	\$916
Two Persons Total	\$578	\$595	\$627	\$679	\$744	\$825	\$904	\$1,306
Three Persons Total	\$802	\$808	\$812	\$819	\$924	\$937	\$1,017	\$1,368
Four Persons Total	\$856	\$890	\$936	\$941	\$1,042	\$1,063	\$1,203	\$1,546
More than Four Persons (For each additional person, add to four person total allowance):	\$138	\$149	\$160	\$171	\$182	\$193	\$204	\$216

**Table 2. Transportation Standards**

Ownership Costs			
		First Car	Second Car
<b>National</b>		\$471	\$332
Operating Costs and Public Transportation Costs			
	No Car	One Car	Two Cars
<b>Northeast Region</b>	\$238	\$311	\$393
Boston	\$267	\$300	\$382
New York	\$313	\$402	\$484
Philadelphia	\$245	\$304	\$386
Pittsburgh	\$167	\$274	\$357
<b>Midwest Region</b>	\$199	\$275	\$358
Chicago	\$264	\$327	\$410
Cincinnati	\$227	\$260	\$343
Cleveland	\$204	\$280	\$362
Detroit	\$320	\$390	\$473
Kansas City	\$252	\$296	\$379
Milwaukee	\$214	\$254	\$336
Minneapolis-St. Paul	\$284	\$333	\$416
St. Louis	\$207	\$264	\$346
<b>South Region</b>	\$203	\$260	\$343
Atlanta	\$291	\$238	\$320
Baltimore	\$233	\$271	\$353
Dallas-Fort Worth	\$317	\$348	\$430
Houston	\$287	\$338	\$420
Miami	\$292	\$348	\$431
Tampa	\$264	\$253	\$336
Washington, DC	\$299	\$350	\$433
<b>West Region</b>	\$252	\$338	\$420
Anchorage	\$319	\$341	\$423
Denver	\$312	\$338	\$420
Honolulu	\$300	\$328	\$410
Los Angeles	\$284	\$426	\$508
Phoenix	\$275	\$351	\$433
Portland	\$194	\$297	\$379
San Diego	\$322	\$382	\$464
San Francisco	\$325	\$401	\$484
Seattle	\$267	\$329	\$412

The IRS housing and utility expense standards are computed on a county-by-county basis and are thus too voluminous to display. However, the following table contains an excerpt:

**Table 3. Maine Housing and Utility Standards by County**

County	Family of 2 or less	Family of 3	Family of 4 or more
Androscoggin County	1,021	1,201	1,381
Aroostook County	748	880	1,012
Cumberland County	1,207	1,420	1,633
Franklin County	845	994	1,144
Hancock County	986	1,160	1,334
Kennebec County	944	1,111	1,278
Knox County	963	1,133	1,303
Lincoln County	965	1,135	1,306
Oxford County	871	1,025	1,178
Penobscot County	930	1,095	1,259
Piscataquis County	735	865	995
Sagadahoc County	1,066	1,254	1,443
Somerset County	793	933	1,072
Waldo County	907	1,067	1,227
Washington County	735	865	995
York County	1,142	1,344	1,545

For purposes of applying the IRS allowable expense standards, the following methods were employed to determine the taxpayer's income to which the allowable expenses would be compared:

- The total positive income (TPI) from the Tax Year 2005 individual Federal income tax return was considered.<sup>17</sup>
- The taxpayer's and spouse's incomes from the IRMF wage and Form 1099 income (SSA, miscellaneous, interest, dividend, and IRAs and pension income) were considered.<sup>18, 19</sup>
- If a taxpayer filed a Tax Year 2005 return, the IRMF data and the corresponding tax return line item were compared to determine

<sup>17</sup> To ensure a conservative analysis, Tax Year 2004 TPI was used if no Tax Year 2005 return was filed and if the Tax Year 2004 TPI exceeded the IRMF data available for analysis.

<sup>18</sup> If no Tax Year 2005 IRMF data were available, Tax Year 2004 IRMF data were used. However, future versions of this report may omit the Tax Year 2004 IRMF data from the final analysis.

<sup>19</sup> Forms 1099 are income information documents supplied to the IRS from third parties.

the largest value (e.g., if a taxpayer reported \$500 interest income on the 2005 tax return, but the IRMF data showed the taxpayer received \$700 of interest income, the \$700 amount was used for the taxpayer's interest income).

- For Tax Year 2005, taxpayers' incomes were computed as the sum of the maximum of the tax return line item or the corresponding IRMF amount and the amount of other income reported on the return for which no IRMF data were available.
- For taxpayers whose most recently filed return was older than 2005, the taxpayers' incomes were considered to be the sum of the IRMF incomes.

After determining the taxpayers' incomes, the IRS allowable expense amounts were computed as follows:

1. The National Standard allowable expense amount was based on the size of household as determined by exemptions claimed on the Tax Year 2005 return. If no Tax Year 2005 return was filed, the National Standard allowable expense amount was based on a household of one.
2. The transportation allowable expense amount was based on the lowest regional IRS allowable operating expense. While this amount was provided to everyone for the allowable expense proxy, no allowance was given for any other transportation expense, including vehicle ownership.
3. The housing and utility allowable expense amount was the smaller of 20 percent of total positive income (from return) or the IRS allowable expense amount.<sup>20</sup> The 20 percent of total income was the lowest Census American Community Survey (from Census Bureau American Fact Finder) allowance for housing expenses. Where a tax return was not filed or the most recent filed return was older than Tax Year 2005, the income amounts from Forms 1099 and Forms W-2 were used to create a proxy for total positive income.<sup>21</sup> For those records where the smaller amount was the IRS

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<sup>20</sup> The taxpayer's ZIP code was determined from the SSA address and mapped to the corresponding state and county using a commercial database. For the 185,513 SSA FPLP records, 1,368 did not have a reported ZIP code from the SSA. An additional 6,988 cases could not be mapped to the IRS allowable expense listing of states and counties, mostly due to differences in the layout of the county name (e.g., presence or absence of a hyphen). In these instances, the national average for each county (by household size) was used.

<sup>21</sup> Wage and Tax Statement.

housing and utility allowable expense amount, the expense was based on number of persons in the household, which was taken from exemptions claimed on the Tax Year 2005 return. If a Tax Year 2005 return was not filed, the household size was set at one.

4. The total allowable expense proxy amount was the sum of the National Standard, transportation, and housing and utility amounts (described above). This sum was multiplied by 12 to convert to an annual allowable expense amount.

Additional analyses were also performed to explore the availability of taxpayer assets besides income to satisfy the liability. The GAO report on FPLP taxpayers examined IRMF data to look for the presence of real estate, which could be leveraged to satisfy the delinquent liability. This analysis is repeated in this report, except with the use of tax return data on mortgage interest or real estate data (instead of IRMF data), and cross-referenced with the allowable expense classification of a taxpayer's ability to pay.

This report also includes an additional asset analysis which looks at interest, dividend, and positive Form 1040 Schedule D amounts and extrapolates an underlying asset value by assuming a 5-percent return on investment.<sup>22</sup> Again, these results are also cross-referenced with the allowable expense classification of a taxpayer's ability to pay.

## **Limitations**

In addition to the limitations described in the prior methods section, the following limitations were also present:

Although, for FY 2007 FPLP cases, the most recent tax return due was for Tax Year 2006, the most recent data available for analysis were for Tax Year 2005.

The following cases were removed from analysis because of special circumstances:

- 3,305 cases were removed because the case had multiple delinquent modules with different disposition types.
- 2,243 cases were removed from analysis because the cases were in a Collection status other than continuous levy, full pay, or installment agreement (e.g., bankruptcy, offer in compromise, etc.).<sup>23</sup>

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<sup>22</sup> Capital gains and losses.

<sup>23</sup> Ultimately, 185,513 cases remained for analysis.

## Findings

As previously described, a proxy for IRS allowable expenses was compared to a taxpayer's income to determine whether an ability to pay existed. Taxpayers with incomes greater than their allowable expenses were placed in the "can pay" group, while taxpayers with incomes less than or equal to their allowable expenses were placed in the "cannot pay" group.<sup>24</sup> These two groups were then compared to the status of the taxpayer's account (at the time of sample extraction) as depicted in the following table:<sup>25</sup>

**Table 4. Taxpayer Ability To Pay**

Case Status/Ability To Pay <sup>26</sup>	Cannot Pay <sup>27</sup>	Can Pay
Levy	28,420	128,635
Paid	785	14,435
IA	935	12,303

Highlighted table cells are those instances where the allowable expense proxy initially appears to incorrectly classify the taxpayer case. Ongoing FPLP levy cases are not considered incorrect, since the IRS has not had contact with these taxpayers to determine their ability to pay.

The allowable expense proxy appears to have classified 6 percent of sample cases as being unable to pay, even though the taxpayer either paid the balance due or entered into an arrangement with the IRS to pay the liability. Many of these inconsistencies may have a reasonable explanation, and will be explored in some detail hereafter.

<sup>24</sup> Forty-five cases classified as unable to pay by the allowable expense analysis were claimed as dependents on other tax returns. However, even if no housing expenses were allowed to these individuals, their allowable expenses still exceed their incomes.

<sup>25</sup> The objective of the analysis is to explore whether the filter would inappropriately exclude from levy a significant number of taxpayers who actually paid or entered into an agreement to pay, resulting in an unjustified potential revenue loss to the government. Hardship cases are excluded from the analysis, because the revenue loss is justified due to the financial hardship the taxpayer would experience if subjected to levy.

<sup>26</sup> Levy denotes a taxpayer liability subject to an ongoing, monthly FPLP levy. Paid denotes a taxpayer liability which was fully paid either by the FPLP levy or another payment from the taxpayer. IA denotes a taxpayer liability where the IRS has agreed to allow the taxpayer to pay the outstanding balance in monthly installments.

<sup>27</sup> Form 1099R is used to report income from both pensions and IRA distributions. For this analysis, Form 1099R was compared to IRA distributions reported on the tax return. Data were not available to determine whether the 1099R was for pension income or IRA distributions. As a result, nine cases classified as "cannot pay" cases could potentially be classified as "can pay" cases, if the Form 1099R were compared to pension income instead of IRA distributions.

Analysis—Inconsistencies

Full Pay Cases where Allowable Expense Proxy Shows an Inability To Pay

Slightly less than 800 taxpayers fully paid their liabilities, even though the allowable expense proxy showed these taxpayers to be unable to pay. As indicated in the table below, almost 80 percent of these taxpayers had total liabilities of at most \$870, with 70 percent having liabilities of \$434 or less.

Table 5. Tax Liability Amounts of Full Pay Taxpayers Classified as Unable To Pay

Percentiles	Balance Due
10	\$ —
20	\$ 41
30	\$ 82
40	\$ 114
50	\$ 184
60	\$ 264
70	\$ 434
80	\$ 870
90	\$ 2,757
Mean	\$ 2,638

It seems likely that these taxpayers may not have had an ability to pay based on IRS guidelines, but were able to compensate for missing income for the relatively short time required to pay off balance due. As indicated in the following table, the lower incomes of these taxpayers support the determination of their inability to pay:

Table 6. Income Levels of Full Pay Taxpayers Classified as Unable To Pay

Percentiles	Best Income <sup>28</sup>
10	\$ 2,401
20	\$ 3,968
30	\$ 5,056
40	\$ 6,090
50	\$ 6,823
60	\$ 7,422
70	\$ 7,955
80	\$ 8,443
90	\$ 10,606
Mean	\$ 6,600

<sup>28</sup> Best Income represents the highest amount of income which could be attributed to the taxpayer from available sources.

## Installment Agreement Cases where Allowable Expense Proxy Shows an Inability To Pay

Over 900 FPLP taxpayers entered into installment agreements even though the allowable expense proxy showed them to be unable to pay. However, only 53 (5.7 percent) of these installment agreements were nonstreamlined.<sup>29</sup> Since the IRS did not collect financial information from these taxpayers, it is possible that they experienced financial hardship by entering into an agreement to pay their liabilities.

Overall, the allowable expense proxy classified only 6.6 percent of nonstreamlined installment agreement cases as not having an ability to pay. The lower incomes of these taxpayers support the determination of their inability to pay:

**Table 7. Income Levels of Installment Agreement Taxpayers Classified as Unable To Pay**

Percentiles	Best Income
10	\$ 2,467
20	\$ 4,131
30	\$ 5,219
40	\$ 6,072
50	\$ 6,732
60	\$ 7,214
70	\$ 7,728
80	\$ 8,153
90	\$ 9,539
Mean	\$ 6,438

In contrast with those taxpayers who paid their liability in full, these taxpayers generally have larger outstanding liabilities:

**Table 8. Tax Liability Amounts of Installment Agreement Taxpayers Classified as Unable To Pay**

Percentiles	Balance Due
10	\$ 86
20	\$ 261
30	\$ 434
40	\$ 690

<sup>29</sup> Streamlined installment agreements do not require the IRS to obtain financial information to determine if the taxpayer can actually afford the installment payment.



**Table 8. Tax Liability Amounts of Installment Agreement Taxpayers Classified as Unable To Pay—Continued**

Percentiles	Balance Due
50	\$ 1,036
60	\$ 1,425
70	\$ 1,975
80	\$ 3,284
90	\$ 5,952
Mean	\$ 3,373

## Additional Analyses

### Assets To Satisfy Delinquent Tax Liability

An analysis was performed to estimate if the taxpayer had other assets to satisfy the tax obligation. For one analysis, the sum of a taxpayer's interest, dividend, and Schedule D profit was computed to estimate the underlying principal asset, presuming an annual rate of return of 5 percent per year.<sup>30</sup> The results of this analysis are displayed in the following table:

**Table 9. Allowable Expense Classification by Liquid Assets Available**

Case Status/Ability To Pay	Allowable Expense Classification	
	Cannot Pay	Can Pay
Levy	14	216
Paid	267	7,980
IA	140	2,831
Total	524	11,918

This table shows that most individuals with interest, dividend or capital gain producing assets sufficient to satisfy the liability are already classified as able to pay, but a small additional number of taxpayers show that they may have sufficient assets to satisfy the liability.

The presence of real estate as indicated by mortgage interest or taxes deducted on the Form 1040 Schedule A was also reviewed. The following table shows the distribution of taxpayers by ability to pay, with an underlying principal asset greater than the tax liability (i.e., those taxpayers depicted in the prior table) or with real estate:<sup>31</sup>

<sup>30</sup> Interest and dividend amounts reported on the tax return were compared to their corresponding IRMF amounts, and the higher value was used.

<sup>31</sup> No attempt was made to value the real estate or determine if it contained equity.

**Table 10. Allowable Expense Classification by Liquid or Real Estate Assets Available**

Case Status/Ability To Pay	Allowable Expense Classification	
	Cannot Pay	Can Pay
Levy	237	11,012
Paid	292	9,388
IA	164	4,598

Again, this table also shows that most individuals who may have enough liquid assets to satisfy the liability or with real estate are already classified as able to pay, but a small additional number of taxpayers show that they may have sufficient assets to satisfy the liability.

**Ability To Make More than a Nominal Payment**

Separate analyses were also performed to review the taxpayer’s ability to pay based on the minimum IRS installment agreement payment amount and on the FPLP levy 15-percent attachment amount. As presented in the following table, if a taxpayer’s income were required to show an ability to pay at least equal to the IRS minimum installment agreement payment, the following cases would be moved from the “can pay” category to the “cannot pay” category:

**Table 11. Classified as “Can Pay”: Unable To Make Minimum Installment Agreement**

Case Status	Could Not Pay
Levy	2,515
Paid	75
IA	103

The following table depicts those taxpayers whose incomes do not exceed their allowable living expenses by at least the amount of the 15-percent FPLP attachment to Social Security income:

**Table 12. Classified as “Can Pay”: Unable To Afford FPLP Levy**

Case Status	Cannot Afford FPLP Attachment
Levy	15,979
Paid	534
IA	737

Both scenarios show that comparing the taxpayers' incomes and allowable expenses to either the ability to afford the IRS minimum installment agreement amount or the FPLP attachment amount moves a significant number of taxpayers from the "can pay" to the "cannot pay" group. Most of the affected taxpayer delinquencies were in continuous levy status and had not been disposed of by the IRS.

## **Conclusions**

- About 6 percent of all cases with full pay or installment agreement IRS dispositions were classified by the filter as unable to pay.
- An analysis of taxpayer incomes supports the model's classification results.
- Taxpayers with small tax liabilities demonstrated an ability to endure the FPLP Social Security levy, even though their incomes indicated an inability to pay.
- Over 97 percent of all taxpayers with real estate or with liquid assets possibly sufficient to satisfy the liability were already classified by the model as "can pay."
- Over 10 percent of taxpayers classified as "can pay" by the model did not have sufficient income to afford the 15-percent FPLP attachment.
- Overall, the TAS model for filtering out taxpayers unable to afford an FPLP levy demonstrates sufficient reliability to be considered for use by the IRS.



# Lessons Learned from IRS Free Filers: Capturing Young Taxpayers for a Lifetime of Electronic Filing

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**T**he Internal Revenue Service (IRS) Free File program is a free Federal tax preparation and electronic filing program for eligible taxpayers developed through a partnership between the IRS and the Free File Alliance, a group of industry-leading private sector tax preparation companies. For Tax Year (TY) 2006, the Free File program allowed taxpayers earning adjusted gross incomes of \$52,000 or less to file their Federal tax returns for free with no hidden fees. The Free File program, which is available in both English and Spanish, reported more than 3.8 million Free File returns filed in TY 2006.

An internal study by Wage and Investment Research and Analysis (WIRA) suggests that most Free File participants continue to file electronically in future years. Of those taxpayers who Free Filed in TY 2005, 87 percent continued to file electronically in TY 2006, with only 13 percent filing paper returns. Using Free File as an avenue to increase electronic returns has the potential to move the IRS closer to the Congressional mandate of having at least 80 percent of all tax and information returns filed electronically.

Reducing paper returns will also save the IRS money. The IRS Improvement Project Plan notes that electronic returns require less direct processing costs than paper returns (\$.74 for electronic versus \$1.39 for paper) because manual processing is diminished. Storage costs are also reduced as electronic returns are stored more efficiently. In addition, electronic returns have a lower error rate than paper returns (less than 1 percent for electronic returns versus 20 percent for paper returns), which could reduce costs associated with sending notices to taxpayers and other costs related to correcting errors.

## Research Objectives

In this study, the researchers strive to accomplish two main objectives:

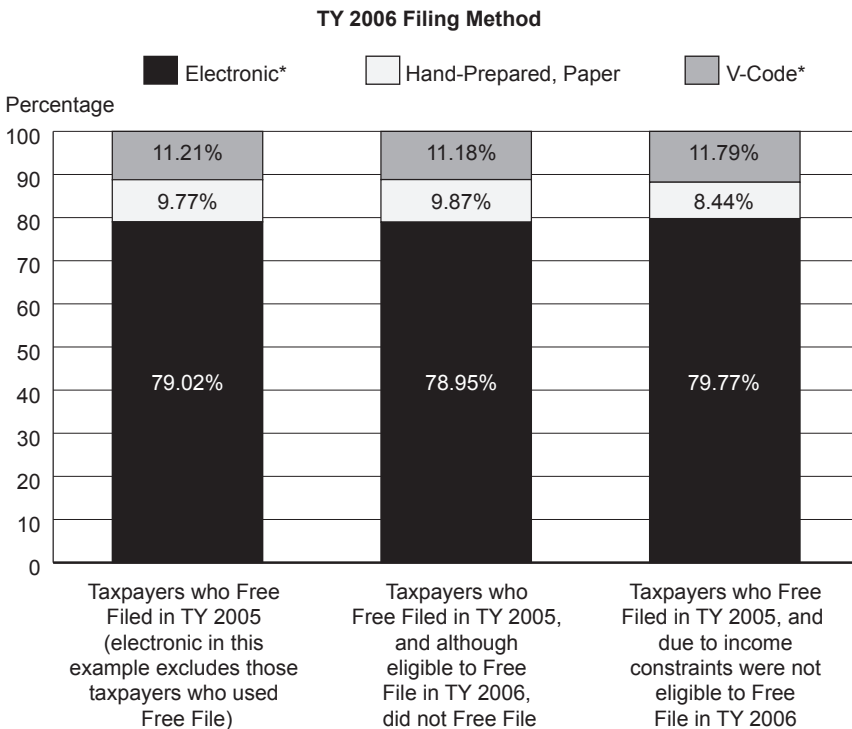
1. Determine whether the Free File program acts as a gateway to electronic filing; and
2. Identify market segments with the greatest potential for increasing participation in the Free File program and consequently increasing the number of electronic returns filed.

## Conclusions

### Free File Program Acts as Gateway to Electronic Filing

Free File data migration analysis reveals strong support that past participation in the Free File program acts as a gateway to continued future electronic filing. Taxpayers who Free Filed in TY 2005 filed a larger percentage of electronic returns than the general population in TY 2006 (87.0 percent of those who Free Filed in TY 2005 versus 59.5 percent of the general population). As revealed in Figure 1, regardless of whether TY 2005 Free Filers were eligible to Free File in TY 2006, approximately 80 percent continued to file electronically. Specifically, migration data uncovered that 79.8 percent of individuals who Free Filed in TY 2005, although no longer eligible to Free File in TY 2006 due to the income constraints of the Free File Program, continued to file electronically.

**Figure 1. TY 2006 Filing Methods of TY 2005 Free Filers**



Source: ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006

Notes: \*Electronic is comprised of self-prepared, online returns and electronically filed returns by a paid preparer.

\*V-Code returns are mailed-in, computer-generated tax returns.

Additional analysis further supports the idea of Free File as a gateway to electronic filing by revealing that 79.3 percent of those who filed a paper return in TY 2004 and Free Filed in TY 2005 continued to file electronically in TY 2006. While outside factors likely contributed to this transition, comparing this group to the general population indicates that participation in the Free File program may have been a strong contributing factor in moving these individuals from paper to electronic filing. For example, more than 70.4 percent of general taxpayers who filed a paper return in TY 2004 continued to file a paper return in TY 2006.

Examining what method taxpayers who TeleFiled in TY 2004 (the last tax year the TeleFile program was available) used to file in TY 2005 and TY 2006 provides further support of the Free File program as a gateway to electronic filing.<sup>1</sup> Those taxpayers who TeleFiled in TY 2004 and Free Filed in TY 2005 filed an electronic return more often than the whole population of taxpayers who TeleFiled in TY 2004. Specifically, 83.9 percent of TY 2004 TeleFile taxpayers who Free Filed in TY 2005 filed an electronic return in TY 2006 compared to 54.9 percent for the entire TY 2004 TeleFile population.

### **Free File Marketing Efforts Should Target Young V-Coders and Students**

Free File marketing efforts should focus on converting young V-Coders and students who meet the eligibility requirements for the Free File program to electronic filing. Generally speaking, it should be more cost-effective to convert younger taxpayers to Free File and subsequent electronic filing than older taxpayers. The longer duration of younger taxpayers' Free File participation effectively reduces the cost of attracting them to the program when that cost is amortized over the number of years they participate.

Young V-Coders and students should be easiest to move to the electronic channel, because these taxpayers tend to use the Internet for services already. Taxpayer Assistance Blueprint (TAB) Conjoint Analysis research indicates that taxpayers who are under 25-years-old are already inclined to use the Internet for tax-related tasks. In addition, V-Coders are already filling out their returns electronically despite mailing in the return on completion.

These two demographic market segments also have relatively simple returns with 47.1 percent of self-prepared, V-Coded returns and 78.8 percent of student returns classified as simple (compared to 30.6 percent of all

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<sup>1</sup> TeleFile was an IRS tax filing program launched in 1992 which allowed taxpayers to file certain tax forms by telephone. The program ended in 2005.

returns).<sup>2</sup> The overall simplicity of these returns makes young V-Coders and students prime targets for the Free File program, because these demographic market segments are more likely to be able to complete their own tax returns without using a paid preparer.

Targeting young V-Coders and students also has the potential for a high return on marketing dollars spent to convert these taxpayers. Analysis in this report indicates that Free Filers tend to continue to file electronically, even after they discontinue using the Free File program. Converting a young taxpayer to electronic filing would save the IRS more money than converting an older taxpayer as younger taxpayers would be expected to file a return for more years.

## Migration Results

### General Population

In TY 2006, approximately 60 percent of all taxpayers filed an electronic return with 13 percent filing a hand-prepared, paper return and the remaining 27 percent filing a V-Coded paper return (refer to Table 1).

**Table 1. TY 2006 Filing Method of Entire Taxpayer Population**

	Count (*)	Percentage
Hand-Prepared, Paper	17,865,323	13.29%
V-Coded	36,559,559	27.21%
Electronic	79,956,548	59.50%

Source: ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006

### TY 2005 Free File Taxpayers

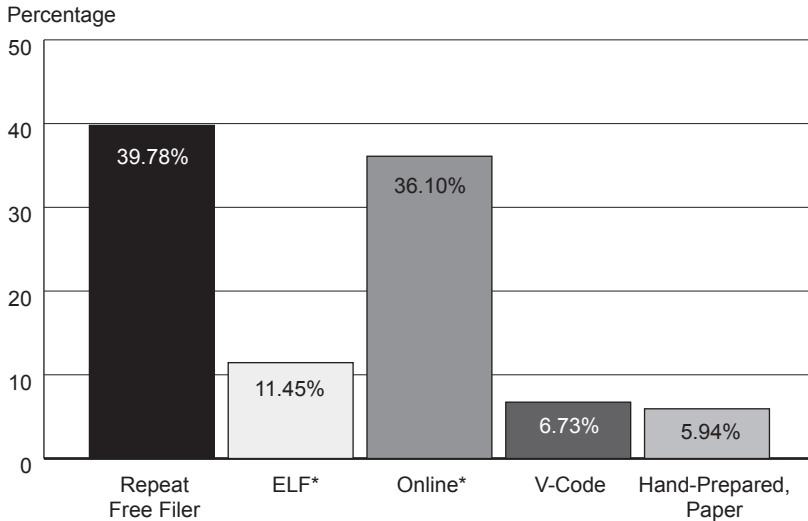
Taxpayers who Free Filed in TY 2005 and were eligible to Free File again in TY 2006 tended to continue to file electronically. As revealed in Figure 2, the Free File program had approximately a 40-percent retention rate, with 1,284,781 taxpayers choosing to Free File in both TY 2005 and TY 2006. Although only 40 percent of TY 2005 Free Filers who were eligible to Free File in TY 2006 participated in the program again, more than 47 percent continued to file electronically through either paid preparers or self-prepared

<sup>2</sup> A simple return is defined in the ETA IMF Marketing Database Full Processing Year 2007 Glossary as either a Form 1040, 1040A, or 1040EZ, without any schedules.



online returns. Moreover, less than 13 percent of TY 2005 Free Filers filed a paper return in TY 2006.

**Figure 2. TY 2006 Filing Method of Taxpayers Who Free Filed in TY 2005 and Were Eligible To Free File Again in TY 2006**



Source: ETA IMF Marketing Database Full Tax Years 2005 and 2006

Notes: \*ELF returns are electronically filed returns by a paid preparer.

\*Online returns are self-prepared, online tax returns. In this example, online does not include Free Filed returns.

Migration results also reveal that taxpayers who filed a paper return in TY 2004 and Free Filed in TY 2005 overwhelmingly continued to file electronically in TY 2006. Specifically, 79.3 percent of taxpayers who filed either a hand-prepared, paper return or a V-Coded paper return in TY 2004 and Free Filed in TY 2005 continued to file electronically in the following year. Refer to Table 2 for an outline of the TY 2004 and TY 2006 filing methods of TY 2005 Free Filers.

**Table 2. TY 2006 Filing Method of TY 2005 Free File Taxpayers, by TY 2004 Filing Methods**

TY 2006 Filing Method	Filed a Paper Return in TY 2004	Filed a V-Coded Return in TY 2004	Filed a TeleFile Return in TY 2004	Filed an ELF Return in TY 2004	Filed an Online Return in TY 2004
	Free Filed in TY 2005				
Hand-Prepared, Paper	57,947 (9.75%)	11,934 (4.70%)	56,496 (9.43%)	12,097 (3.59%)	43,923 (3.14%)
V-Coded	65,375 (11.00%)	40,595 (16.00%)	40,085 (6.69%)	19,062 (5.66%)	70,545 (5.04%)
Electronic	471,255 (79.26%)	201,249 (79.30%)	502,245 (83.87%)	305,556 (90.75%)	1,283,857 (91.81%)

Source: ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006

As revealed in Table 2, for each of the five TY 2004 filing methods identified, TY 2005 Free Filers overwhelmingly continued to file electronically in TY 2006.

### Case Study: Filing Methods of Previous TeleFile Taxpayers

The following case study of taxpayers who used the TeleFile program provides insight into how Free File participation affects electronic filing.

An IRS TeleFile pilot program was launched on a limited basis in 1992. The program later became available nationally to single Form 1040EZ filers in 1997. A year later, the Revenue and Reform Act of 1998 included an expectation that the IRS would continue to offer and improve TeleFile, as well as create a similar program available on the Internet. In accordance with this act, the TeleFile program expanded to support the telephone filing of Form 941, Form 4868, and selected Forms 1040EZ and State individual tax returns.

Despite its initial success, TeleFile volume began to decline in the early 2000s. By 2004, despite a slight growth in Forms 941 and 4868, use for individual tax returns had continued to drop in each of the previous 4 years. The IRS officially ended the TeleFile program on August 16, 2005, citing the following factors as contributing to the decision:

- Increased costs of maintaining the system
- Declining use of Federal TeleFile overall
- Declining use and discontinuance of State TeleFile programs; and
- Growth of other electronic filing alternatives, such as Free File.

The demise of the IRS TeleFile program leads to the question, “In the absence of the TeleFile option, what filing methods did previous TeleFile taxpayer users turn to?” As revealed in Table 3, approximately 51.2 percent of TY 2004 TeleFilers filed an electronic return in TY 2005, with the other 48.8 percent filing paper returns.

**Table 3. Post-Tax Preparation Filing Methods of TY 2004 TeleFilers**

	TY 2005 Filing Method	TY 2006 Filing Method
Hand-Prepared, Paper	1,142,156 (38.06%)	948,954 (34.07%)
V-Coded	323,419 (10.78%)	306,809 (11.02%)
Electronic	1,535,155 (51.16%)	1,529,473 (54.91%)

Source: ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006

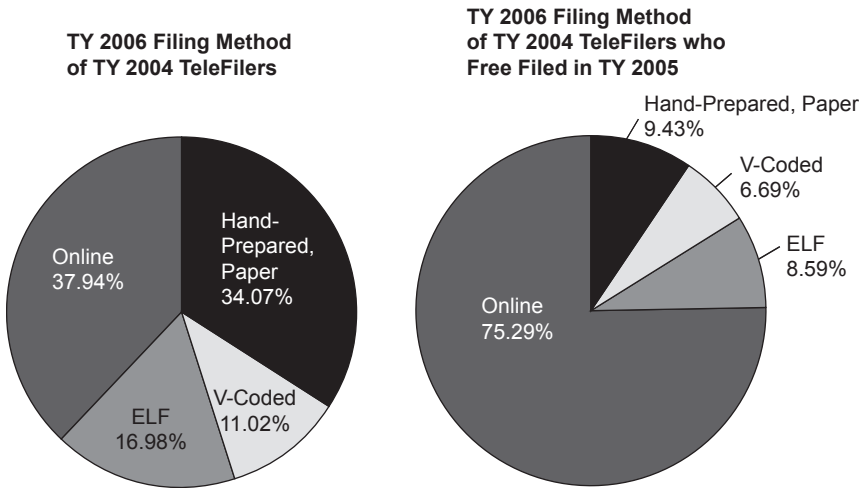
Taken 1 year further out, migration data reveal that approximately 54.9 percent of TY 2004 TeleFilers filed electronic returns in TY 2006, with the other 45.1 percent filing paper returns. However, TY 2004 TeleFilers who Free Filed in TY 2005 overwhelmingly continued to file electronically in TY 2006. Specifically, the data presented in Table 4 show that approximately 83.9 percent of TY 2004 TeleFilers who Free Filed in TY 2005 filed an electronic return in TY 2006.

**Table 4. TY 2006 Tax Preparation Method of Taxpayers Who TeleFiled in TY 2004 and Free Filed in TY 2005**

	TY 2006 Filing Method
Hand-Prepared, Paper	56,496 (9.43%)
V-Coded	40,085 (6.69%)
Electronic	502,245 (83.87%)

Source: ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006

Results outlined in Table 4 provide further strong evidence that the Free File program acts as a gateway to continued, future electronic filing (refer to Figure 3 for a graphical illustration).

**Figure 3. A Comparison of TY 2004 TeleFilers Postfiling Methods**

Source: ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006

## Potential Free File Market Segments

A profile of taxpayers by filing method and other variables shows that self-prepared, V-Coded, potential Free Filers, young taxpayers, and students have the most potential for conversion to the Free File program. The following provides a profile of these groups to justify marketing efforts to these demographic market segments.

### Self-Prepared, V-Coded, Potential Free Filers

Self-prepared, V-Coded, potential Free Filers are comprised of taxpayers who self-prepare paper-mailed, computer-generated tax returns that meet the income eligibility requirements of the Free File program. As such, this population of taxpayers exhibits many of the characteristics/qualities desirable in a market segment for potential Free File outreach and education. In addition, as revealed in Table 5, more than 50 percent of TY 2006 self-prepared, V-Coded, Free File eligible taxpayers were age 34 or younger.

**Table 5. TY 2006 Self-Prepared, V-Coded, Potential Free Filers**

Age	Self-Prepared, V-Coded, Potential Free Filers	Percentage	
Under 25	2,793,296	33.03%	<p>4,303,710 (50.89%)</p> <p>Over half of these self-prepared, V-Coded, Free File eligible taxpayers are age 34 or younger.</p>
25 to 34	1,510,414	17.86%	
35 to 44	1,087,976	12.87%	
45 to 54	1,069,808	12.65%	
55 to 64	825,933	9.77%	
65 and Older	1,169,196	13.83%	
Total	8,456,623	100.00%	

Source: ETA IMF Marketing Database Full Tax Year 2006

Another characteristic of self-prepared, V-Coded, potential Free Filers that makes this population a strong candidate for Free File marketing and outreach is the relative overall simplicity of these returns. The Electronic Tax Administration Individual Master File (ETA IMF) Marketing Database Full Processing Year 2007 Glossary categorizes return complexity as either simple, intermediate, or complex.<sup>3</sup>

As exhibited in Table 6, more than 47.0 percent of TY 2006 self-prepared, V-Coded, potential Free Filers filed a simple return, with an additional 27.6 percent filing returns classified as intermediate. The relative simplicity of these returns is made even more evident when compared to all Free File eligible, nonparticipants as a whole. Specifically, only 38.9 percent of Free File eligible, nonparticipants filed returns classified as simple in TY 2006, compared to 47.1 percent simple returns for self-prepared, V-Coded, potential Free Filers.

<sup>3</sup> The ETA IMF Marketing Database Full Processing Year 2007 Glossary defines a simple return as Form 1040, 1040A, or 1040EZ, without any schedules; an intermediate return as Form 1040A with schedules or 1040 with schedules A, B, D, Additional Child Tax Credit, Educational Credits, Child Care Credit, Credit for Elderly, or Earned Income Credit; and a complex return as Form 1040 with schedules C, E, F or other schedules and all other specific Forms 1040, e.g. 1040PR, etc. (ETA IMF Glossary, p. 17).

**Table 6. TY 2006 Tax Form Complexity**

Return Complexity	Self-Prepared, V-Coded, Potential Free Filers	Free File Eligible, Nonparticipants
Simple	3,979,805 (47.06%)	33,925,380 (38.85%)
Intermediate	2,333,189 (27.59%)	28,988,037 (33.19%)
Complex	2,143,629 (25.35%)	24,419,489 (27.96%)
Total	8,456,623	87,332,906

Source: ETA IMF Marketing Database Full Tax Year 2006

## Young Taxpayers and Students

Taxpayers under the age of 25 exhibit a low Free File participation rate.<sup>4</sup> Specifically, for TY 2006, the Free File participation rate among taxpayers under the age of 25 was approximately 7.1 percent. Furthermore, as revealed in Table 7, the under-25-year-old age cohort had the largest percentage of Free File eligible, nonparticipants.

**Table 7. Age Cohorts by Free File Eligibility and Participation, TY 2006**

Age	Free Filers	Potential Free Filers	All Filers	Free File Eligible, Nonparticipants
Under 25	40.91%	24.25%	16.73%	23.52%
25 to 34	28.39%	21.09%	18.77%	20.76%
35 to 44	14.28%	16.14%	18.75%	16.23%
45 to 54	9.90%	14.32%	18.48%	14.52%
55 to 64	4.29%	10.28%	18.39%	10.54%
65 and Over	2.23%	13.92%	13.89%	14.43%
Total	100.00%	100.00%	100.00%	100.00%

Source: ETA IMF Marketing Database Full Tax Year 2006

These statistics, combined with the previously cited literature on the comfort and willingness of younger generations to use computers for tax-related purposes, support identifying students as a second market segment with high potential for increasing participation in the Free File program. For TY 2006, students were defined as taxpayers who did not claim any Earned Income Tax Credit (EITC), age 18 to 24, and had adjusted gross incomes between \$0 and \$16,999.

<sup>4</sup> The Free File participation rate equals the actual Free File population divided by the potential Free File population.

Table 8 shows the TY 2006 filing methods of the approximately 11.7 million identified students in comparison to the filing methods of all 134.4 million tax filers. As revealed, despite their young age, only 21.4 percent of students filed an online tax return and 47.9 percent filed a paper return.

**Table 8. TY 2006 Tax Return Filing Method of Students and All Filers**

Filing Method	Students	All Filers
Paper	5,604,655 (47.93%)	54,424,882 (40.50%)
ELF	3,587,282 (30.68%)	57,360,987 (42.69%)
Online	2,501,380 (21.39%)	22,595,561 (16.81%)
Total	11,693,317	134,381,430

Source: ETA IMF Marketing Database Full Tax Year 2006

Not only do the more than 5.6 million students filing paper returns make this market segment a prime target for Free File marketing and outreach, as exhibited in Table 9, students overwhelmingly file simple returns. As revealed in Table 9, approximately 30.6 percent of the population as a whole filed a simple tax return in TY 2006. This compares to more than 78.8 percent of students who filed a return classified as simple in TY 2006. These simple student returns are prime candidates for the Free File program as students are likely to be able to complete their own tax returns, without the need for a paid preparer, and are likely to have the computer skills and technological comfort to navigate the online Free File program.

**Table 9. Return Complexity of TY 2006 Students and All Filers**

Return Complexity	Students	All Filers
Simple	9,217,128 (78.82%)	41,087,496 (30.58%)
Intermediate	1,296,400 (11.09%)	47,972,301 (35.70%)
Complex	1,179,789 (10.09%)	45,321,633 (33.73%)
Total	11,693,317	134,381,430

Source: ETA IMF Marketing Database Full Tax Year 2006

## **Methodology**

### **Data Source, Attributes, and Definitions**

Data for this profiling research project were extracted from the ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006.

Researchers selected those variables from the ETA IMF Marketing Database that were necessary to capture the attributes and populations of interest as outlined in the original research proposal. These attributes involve analysis of tax returns by age, adjusted gross income, filing method (TY04, TY05, and TY06), Earned Income Tax Credit (EITC) amount, consortium return, filing status, prepayment category (refund, even, or balance due), paid preparer indicator, V-Code indicator, bank product indicator, and return complexity. A list and description of the variables chosen for this project are outlined in Table 10.



**Table 10. Variable List and Descriptions of ETA IMF Marketing Database**

Variable	Description/Values
AGICOMP	Adjusted gross income per computer.
BALDUEOP	Refund or balance due amount per computer. A negative amount indicates a refund to the taxpayer, and a positive amount indicates a balance due.
CONSORTIUM_IND	0 = Not a Consortium Return 1 = Consortium Return (taxpayer qualified for and used the Free File program. All Free File returns are required to be filed electronically. Paper returns will have blanks.
DIRDEPCD	Blank or 0 = Direct Deposit not Requested 1 = Direct Deposit Accepted 2 = Direct Deposit Rejected
DIRDEBIND	1 = Direct Debit 0 = No Direct Debit Blank = paper return
EICAMTCOMP	Earned income credit per computer.
NEW_COMPLEX_IND	0 = Simple 1 = Intermediate 2 = Complex
PROCCDVIND	Return processing code. 0 = V-Code not present 1 = V-Code present (return computer-generated but filed as paper)
TRDBRAL	0 = No bank product issued 1 = Refund Anticipation Loan (RAL) 2 = Refund Anticipation Check (RAC) Blank = Present on TRDB when a Form 1040EZ-T is filed or identifies a paper return after matching on the main table
TRDBTY04	Type of electronic tax return filed for TY 2004: 0 = No electronic record on TRDB, taxpayer filed a paper return 1 = Standard ELF (Practitioner ELF) 2 = TeleFile Return 3 = Online
TRDBTY05	Type of electronic tax return filed for TY 2005: 0 = No electronic record on TRDB, taxpayer filed a paper return 1 = Standard ELF (Practitioner ELF) 3 = Online
TRDBTY06	Type of electronic tax return filed for TY 2006: 0 = No electronic record on TRDB, taxpayer filed a paper return 1 = Standard ELF (Practitioner ELF) 3 = Online
YOB	Taxpayer's year of birth.

Source: ETA IMF Marketing Database Full Tax Years 2004, 2005, and 2006

The research project further involved defining terms for those individual attributes in Table 10 that do not have predefined values. Tax returns were classified as with or without EITC and whether the return is a balance due, even, or refund return. Tax returns were further classified by the following age, adjusted gross income, and preparation migration categories outlined in Table 11.

**Table 11. Additional Tax Return Classifications**

Age	Adjusted Gross Income	Preparation Migration
Under 25	Negative AGI	• Free File in TY 2005 and Free File in TY 2006
25 to 34	\$0 to \$17,000	• Free File in TY 2005 and although eligible to Free File in TY 2006, did not, and filed what type of a return?
35 to 44	\$17,001 to \$25,000	
45 to 54	\$25,001 to \$35,000	• Free File in TY 2005 and although no longer eligible to Free File in TY 2006 filed what type of return?
54 to 64	\$35,001 to \$50,000	
65 and Over	\$50,001 to \$75,000	• Filed a TeleFile return in TY 2004, and filed what type of return in TY 2004 and then in TY 2005?
	\$75,001 to \$100,000	
	\$100,001 or more	• Filed a TeleFile return in TY 2004, Free Filed in TY 2005, and then filed what type of return in TY 2006?

In addition to all tax returns being classified by the attributes and categories listed in Table 10 and Table 11, each return was further classified as either a Free File return, a potential Free File return, or a Free File eligible, nonparticipant return. For TY 2005, a Free File return met the following three criteria:

1. CONSORTIUM\_IND = 1 (Free File indicator)
2. TRDBTY05 = 3 (Filed Online)
3. AGICOMP ≤ \$50,000 (TY 2005 Adjusted Gross Income Limit)

For TY 2006, a Free File return met the following four criteria:

1. CONSORTIUM\_IND = 1 (Free File indicator)
2. TRDBTY06 = 3 (Filed Online)
3. AGICOMP ≤ \$52,000 (TY 2006 Adjusted Gross Income Limit)
4. TRDBRAL = 0 (No longer allowed to receive a RAL or RAC)

A potential Free File return for TY 2005 had an adjusted gross income less than or equal to \$50,000, while, for TY 2006, a potential Free File return had an adjusted gross income less than or equal to \$52,000. Free File eligible, nonparticipants are equal to the number of potential Free File returns minus the number of Free File returns for the given tax year. Two additional groups of taxpayers were profiled as potential market segments for increasing participation in the Free File program. These two market segments included:

1. Self-prepared, V-Coded, Free File eligible taxpayers (TY 2006)
  - Self-prepared tax return
  - V-Coded tax return
  - Adjusted gross income less than or equal to \$52,000
2. Students (TY 2006)
  - Age 18 to 24
  - Adjusted gross incomes between \$0 and \$16,999 (inclusive)
  - Claimed no EITC

## **Data Analysis**

In analyzing these market segments and preparation migration data, researchers focused on identifying filing trends and data anomalies that ETARC could use to target future education and electronic marketing efforts effectively and efficiently. Researchers primarily considered and used counts and percentages, as well as descriptive statistics (such as mean, median, mode, variance, and range) when appropriate to the attributes and/or analysis. To aid in understanding and presentation, researchers compiled and manipulated migration data into tables, charts, and graphs to illustrate trends and highlight potential Free File market segments.



# Comments on Harnessing Technology To Improve Tax Administration

*Janet McCubbin, AARP Public Policy Institute*

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**T**he papers by De Silva, Wilson, and Cico and Howard Olson address the important issue of how technology can be harnessed to improve administration and compliance.

Kithsiri De Silva begins his paper with three key observations about tax administration: first, it is too costly to audit more than a small fraction of taxpayers. Second, we collect substantial amounts of data electronically in the normal course of business. Third, most taxpayers want to comply with the tax laws and would welcome help in doing so.

To manage in this environment, De Silva proposes to create a National Fiscal Database (NFC) for New Zealand. The NFC would include information on persons, property, and expenditure and income. As De Silva (page 73 of this volume) explains, “One person’s expenditure leads to another person’s income, thereby creating an ex-income audit trail.” The data would be used to model expected taxpayer income and tax liability, which would then be compared to reported amounts to identify possible noncompliant reports. Or, it could be used to prepopulate taxpayer accounts.

A similar approach could be used in other countries as well. In fact, in the United States, the Housing and Economic Recovery Act of 2008 requires banks and other third parties to report identifying information and the gross amount of debit and credit card transactions to the Internal Revenue Service, beginning in 2011. In addition, President-elect Barack Obama has proposed to simplify filing by increasing IRS’s use of third-party information from banks and employers and allowing taxpayers the option of verifying a return prefilled by IRS. The Obama campaign asserts that the proposal will save Americans up to 200 million total hours of work and aggravation and up to \$2 billion in tax preparer fees.<sup>1</sup> As explained by Joe Bankman in another session of this conference, such a system is already successfully being piloted in California.

It is entirely sensible to make use of the information that we already collect in the normal course of business to facilitate and improve tax compliance. One question to consider as we proceed in this direction is how

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<sup>1</sup> See <http://www.barackobama.com/issues/economy/#tax-relief>, accessed December 18, 2008.

comprehensive and accurate would the expenditure and income data be in the short and long term? Is it possible to administer a broad-based income tax system in the very automated, continuous-time manner that De Silva proposes, or would additional, more fundamental changes in the tax regime be required?

A second, and related, question is how would taxpayers respond to pre-populated reports? That is, how does the compliance game change when the tax administrator tips his hand by revealing what he knows, and consequently what he does not know, about the taxpayer? The asymmetric correction of errors (whereby taxpayers contest errors made against them but fail to report errors in their favor) is not only a compliance problem--it is an equity problem. This is especially true if the available data are more accurate and comprehensive for some, such as low- and moderate-income wage earners, than for others. Thus, equity concerns and the type of tax system that we desire must be balanced against the desire for reduced compliance costs.

Jeff Wilson reports on a proposed use of third-party data and relatively simple modeling to improve the implementation of the Federal Payment Levy Program. The Taxpayer Relief Act of 1997 made it more cost-effective for the IRS to levy certain Federal payments, by providing for a "continuous levy" that may remain in place until the debt is paid. Most taxpayers subject to the continuous levy are Social Security recipients. Social Security recipients often have limited resources and fixed incomes, and might find it extraordinarily difficult to adjust to a garnishment of their Social Security payments. Over 60 percent of individuals aged 65 or over and married couples with an individual aged 65 or over depend on Social Security for more than half of their incomes; nearly 20 percent depend on it for virtually all of their incomes.<sup>2</sup>

In recognition of the vulnerability of lower-income Social Security recipients, IRS initially excluded them from the levy program. In recent years, it has subjected all tax-delinquent Social Security recipients to the program. As a result, appeals to the Taxpayer Advocate and claims for IRS hardship exemptions have grown, adding to IRS's workload. More importantly, some taxpayers will not ask for relief, even if they need it. Therefore, IRS is now searching for a better filter. In this paper, Wilson compares the predictions of one filter regarding who can and cannot pay, to actual IRS data on dispositions of accounts, telling us who has and has not paid.

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<sup>2</sup> See [http://www.ssa.gov/policy/docs/statcomps/income\\_pop55/2004ee/sect08.pdf](http://www.ssa.gov/policy/docs/statcomps/income_pop55/2004ee/sect08.pdf), Table 8.A1.

This method cannot tell us what kind of filter would do the best job in separating those who can pay from those who cannot. It does, however, yield some interesting results. First, about 15 percent of pending cases subject to an IRS levy were estimated to be unable to pay, as they had very little income compared to expected expenses. This suggests that a filter is needed to prevent hardship among this group. Second, the proposed filter appears to do a good job of categorizing taxpayers who are paying (that is, those who have already paid or entered into an installment agreement) as taxpayers who can pay.

The concern with this analysis is that the administrative process is almost certainly imperfect, and, therefore, the actual dispositions that the filter is tested against might not in fact be correct outcomes. IRS should perhaps try to identify a better benchmark and evaluate more than one possible filter against this benchmark. We should also consider whether a one-time or even annual filtering of each case is sufficient, or whether a more frequent filtering could and should be used, consistent with the continuous nature of the levy. Nonetheless, the paper clearly demonstrates that a filter is needed to reduce IRS burden and taxpayer hardship, is feasible to operate, and should be implemented immediately.

David Cico and Courtney Howard Olson look to the future and consider how to encourage the persistent use of electronic filing. They first ask whether the Free File program acts as a gateway to electronic filing. The answer seems to be yes. For example, about 80 percent of taxpayers using Free File for 2005 but not for 2006, nonetheless, filed electronically for 2006. However, about 73 percent of 2005 Free Filers also filed electronically for 2004. The paper does not indicate whether they were filing for free for 2004. It would be useful to better understand how taxpayers were filing before they began using Free File, and to follow them for some years as more data become available, to conclude more definitively that Free File is a gateway to filing electronically for a fee.

Cico and Howard Olson then attempt to identify market segments with the greatest potential for increasing participation in Free File. The first segment identified is young filers. They find that many young taxpayers are Free Filing. However, most taxpayers eligible to Free File are young. Therefore, young filers account for the largest number of eligible nonparticipants as well as the largest group of participants. Similarly, the authors find that 8.5 million filers eligible for Free File prepared their own returns electronically, but then printed them out and mailed them in on paper. This includes many young filers as the authors emphasize, but also 1.2 million filers aged 65 and older. It seems logical that taxpayers who are already us-

ing computers to prepare their returns would be receptive to electronic filing, especially for free.

Lastly, Cico and Howard Olson find that nearly half of “students” are filing on paper, more than taxpayers as a whole, even though these students would be eligible for Free File. However, the authors have not in fact identified students. Rather, they define “student” to be any taxpayer aged 18 to 24, not claiming the EITC, and with incomes below \$17,000. This is likely to be a very diverse group of students and low-wage workers, and a single outreach strategy targeted to this group may be ineffective. Students could, however, be distinguished by matching to Form 1098-T, which educational institutions provide to IRS, identifying students.

All taxpayers should have the opportunity to file for free on paper if they choose, but preferably electronically. It would be useful to build on this research by comparing the characteristics of eligible participants and eligible non-participants (within the groups identified by the authors) to identify ways to reach out to paper filers of all ages and income levels. Then, we can evaluate how far the Free File program can get us towards, the goal of nearly universal electronic filing, and to ask what else needs to be done to make free, electronic filing the norm for Federal tax returns.

As these papers remind us, tax administrators have a duty to help all taxpayers meet their tax filing and payment obligations. Technology can be used to facilitate enforcement and to target assistance to reduce compliance costs and allow those who want to comply to do so more easily. Thus, the issues raised by these papers are central to policymakers and tax administrators.



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## **Appendix**

**Conference Program**  
**List of Attendees**



**2008 IRS Research Conference Program  
June 11-12, Georgetown University Law School  
McDonough Hall, Hart Auditorium**

**DAY ONE: Wednesday, June 11**

8:00-8:45      **Registration**

8:45-9:00      **Welcome**  
Mark J. Mazur, Director,  
Research, Analysis, and Statistics,  
Internal Revenue Service

9:00-9:30      **Keynote Address**  
Douglas Shulman, Commissioner,  
Internal Revenue Service

9:30-10:30    **Panel Discussion:**  
Should the Tax Man Help Prepare Your Return?

**Moderator:**  
Mark J. Mazur, Director,  
Research, Analysis, and Statistics,  
Internal Revenue Service

**Panelists:**  
Joseph Bankman, Ralph M. Parsons Professor of Law  
and Business, Stanford Law School  
Janet Holtzblatt, Congressional Budget Office  
Alan Plumley, Research, Analysis, and Statistics,  
Internal Revenue Service

10:30-10:50    **BREAK**

10:50-12:20    **Estimating Individual Income Tax Noncompliance**

**Moderator:**  
Javier Framinan, Wage and Investment Division,  
Internal Revenue Service

**Papers:**

- *Demographic and Noncompliance Study of the Advance Earned Income Tax Credit*, Joanna Stamatiades and James Cook, Government Accountability Office, and Eric Larsen, Wage and Investment Division, Internal Revenue Service
- *Changing Patterns of Noncompliance Among Sole Proprietors: 1988-2001*, Katie Fox, Janice Hu, and Peter Adelsheim, Small Business/Self-Employed Division, Internal Revenue Service
- *You Earn How Much? An Investigation of Self-Reported Income Versus Administrative Income Data*, Valmai Copeland, New Zealand Inland Revenue

**Discussant:**

John Karl Scholz, University of Wisconsin-Madison

12:20-1:45

**Lunch**

1:45-2:00

**Presentation of IRS Research Recognition Awards**

2:00-3:30

**Administering the Corporation Income Tax in the 21st Century****Moderator:**

Don McPartland, Large and Mid-Size Business Division, Internal Revenue Service

**Papers:**

- *Summary of Repatriated Dividend Study*, Melissa Redmiles, Research, Analysis, and Statistics, Internal Revenue Service
- *FIN 48 and Tax Compliance*, Lillian Mills, University of Texas at Austin, and Leslie Robinson and Richard Sansing, Tuck School of Business, Dartmouth College
- *Electronic Tax Return Filing, Enterprise Data Structures and Tax Compliance Risk Assessment*, Charles Boynton and William Trautman, Large and Mid-Size Business Division, Internal Revenue Service, and Petro Lisowsky, Boston University

**Discussant:**

George Plesko, University of Connecticut,  
School of Business

3:30-3:45

**BREAK**

3:45-4:45

**SOI: 90 Years of Tax Statistics****Moderator:**

Martha Eller Gangi, Research, Analysis, and Statistics,  
Internal Revenue Service

**Presenter:**

Barry W. Johnson, Research, Analysis, and Statistics,  
Internal Revenue Service

**Discussant:**

Michael Udell, Joint Committee on Taxation

**DAY TWO: Thursday, June 12**

8:30-10:00

**Innovative Approaches to Improving Tax Compliance****Moderator:**

Julie Buckel, Small Business and Self-Employed  
Division, Internal Revenue Service

**Papers:**

- *Beyond Deterrence: Targeting Tax Enforcement with a Penalty Default*, Alex Raskolnikov, Columbia University, Columbia Law School
- *Does Threatening 'Prospective Retrospection' of Anti-Avoidance Measures Work in Deterring Tax Avoidance on Employee Remuneration?* Alice Dwyer, Nick Catton, and Antony Long, Her Majesty's Revenue and Customs
- *Encouraging Participation in Tax Filing*, James Alm, Georgia State University; Michael Jones, Bridgewater State College; and Michael McKee, Appalachian State University

**Discussant:**

Jane Gravelle, Congressional Research Service

10:00-10:20     **BREAK**

10:20-11:50     **Harnessing Technology to Improve Tax Administration**

**Moderator:**

Tom Beers, National Taxpayer Advocate,  
Internal Revenue Service

**Papers:**

- *Management of Corporate Tax Data in a Digital Age*, Kithsiri L. De Silva, New Zealand Inland Revenue
- *Developing a Filter to Protect Low Income Taxpayers from Systemic Levies Issued Through the Federal Payment Levy Program*, Jeff Wilson, National Taxpayer Advocate, Internal Revenue Service
- *Lessons Learned from IRS Free Filers: Capturing Young Taxpayers for a Lifetime of Electronic Filing*, David Cico and Courtney Howard Olson, Wage and Investment Division, Internal Revenue Service

**Discussant:**

Janet McCubbin, AARP Public Policy Institute

11:50-12:00     **Closing Remarks**

Janice Hedemann, Director, Office of Research,  
Internal Revenue Service

**List of Attendees**  
**IRS Research Conference**  
**Georgetown University Law Center**  
**June 11-12, 2008**

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**Acevedo, Louis**

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**Alm, James**

Georgia State University

**Ammons, Okley Dale**

Computer Sciences Corporation

**Anderson, Kay**

IRS, Wage & Investment

**Andrews, Stephen**

U.S. Bureau of Economic Analysis

**Apelquist, Krystal**

IRS, National Taxpayer Advocate

**Bader, Shea**

U.S. Government Accountability Office

**Baek, Laura**

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**Baik, Rebecca**

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**Baldwin, Donna**

IRS, Research, Analysis, and Statistics

**Bankman, Joseph**

Stanford Law School

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IRS, Small Business/Self-Employed

**Barrett, Laurie**

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**Bastuscheck, Paul**

IRS, Research, Analysis, and Statistics

**Baxter, John**

Treasury Inspector General for Tax Administration

**Beck, Joshua**

IRS, National Taxpayer Advocate

**Beers, Tom**

IRS, National Taxpayer Advocate

**Behrmann, Andrea**

IRS, Research, Analysis, and Statistics

**Bellefeuille, James**

IRS, Tax Exempt & Government Entities

**Belmonte, Cynthia**

IRS, Research, Analysis, and Statistics

**Bennett, Carolyn**

IRS, Research, Analysis, and Statistics

**Beram, Philip**

U.S. Chamber of Commerce

**Black, Ted**

IRS, Research, Analysis, and Statistics

**Bloomquist, Kim**

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**Blouin, Jennifer**

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**Butler, Jeff**

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**Catton, Nick**

Her Majesty's Revenue & Customs

**Cavazos Flores, Roberto**

Servicio de Administración Tributaria—Mexico

**Cecco, Kevin**

IRS, Research, Analysis, and Statistics

**Chang, Winnie**

Senate Committee on the Budget

**Chen, C. Joy**

Department of Finance, City of New York

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**Plesko, George**

University of Connecticut

**Plueger, Dean**

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**Plumley, Alan**

IRS, Research, Analysis, and Statistics

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**Ponds, Loren**

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**Pope, Shelley**

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**Scott, Lisa**

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**Shackleford, Ben**

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**Shome, Partho**

Her Majesty's Revenue & Customs

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Her Majesty's Revenue & Customs

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**Slack, Eric**

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**Slyuzberg, Michael**

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**Smith, Lou**

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**Stanley, David**

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**Stanton, Mark**

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**Stephenson, Rick**

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**Stevens, Anne**

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**Strudler, Michael**

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**Stuk, Esmeralda**

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**Sullivan, Marty**

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**Tatton, Paul**

Deloitte Consulting, LLP

**Tchouassi, Daniel**

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**Teale, David**

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**Thomas, Dennis**

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**Trautman, William**

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**Udell, Michael**

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**Weyl, Leann**

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**White, James**

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**Wieczynski, Scott**

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**Williams, Floyd**

IRS, Communications & Liaison

**Williams, Linda**

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**Wilson, Jeff**

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**Wolman, Kay**

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**Xu, Libin**

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**Yin, George**

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IRS, Small Business/Self-Employed